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# VORTEX SHEDDING BY BLUNT/BLUFF BODIES AT HIGH REYNOLDS NUMBERS

Volume III of IV  
Cubes

B. R. Merrill

March 1993



Final Report

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**PHILLIPS LABORATORY**  
Directorate of Plans and Programs  
**AIR FORCE MATERIEL COMMAND**  
**KIRTLAND AIR FORCE BASE, NM 87117-5776**

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This final report was prepared by the Phillips Laboratory, Kirtland Air Force Base, New Mexico, under Job Order 9993XX21. The Laboratory Project Officer-in-Charge was Bruce R. Merrill (XPXS).

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This report has been reviewed and is approved for publication.



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13. ABSTRACT (Maximum 200 words)  This report documents the analysis of vortex shedding data collected by the Phillips Laboratory at the U.S. Air Force Academy Subsonic Wind Tunnel facility. The analysis is primarily of the power spectrum of the vortex shedding as seen in the force and moment coefficient power spectra. The shedding frequencies as seen in the power spectra are used to analyze for the Strouhal number. The analysis suggests that shape and orientation in the wind field have an effect on the shedding of vortices.				
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## DATA REPORT

SHAPE:	CUBE
DECLINATION [THETA (degrees)]:	0
DIMENSIONS [LxWxH (in)]:	7.64 x 7.9 x 6.03
WEIGHT (gm):	735.5
TORSION FREQUENCY (Hz):	45
LATERAL (SIDE BEND) FREQUENCY (Hz):	89
NORMAL (AFT BEND) FREQUENCY (Hz):	83
AZIMUTHS (degrees):	0, 30, 45, 60, 90

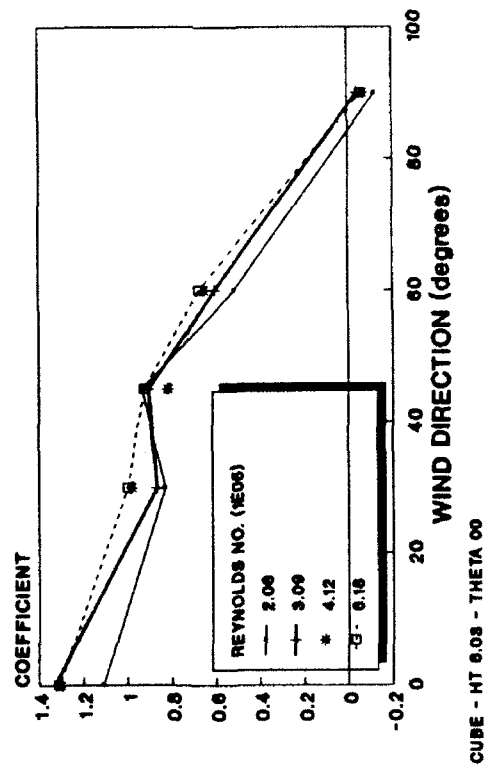
### GRAPH CORRECTIONS:

- The mean value of the **ROLL** moment coefficients should be divided by 12.
- The PSD and PSD Integral values of the **ROLL** moment coefficients should be divided by 144.

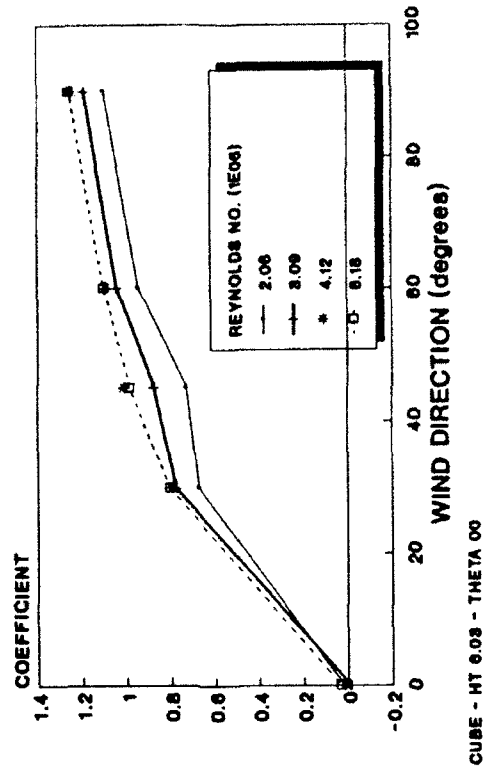
### OBSERVATIONS:

- A very good shed is observed in the lateral data at 0 degrees azimuth. The shed is largely single frequency in nature.
- A very good shed is observed in the normal data at 90 degrees azimuth. This shed is partially seen in the roll data as well. This shed is more multifrequency in nature.
- 15.176 Hz spike is seen in the normal force data. The spike is not always as prominent in the normal moment data which suggests a lack of coherence in the 15.176 Hz spike.

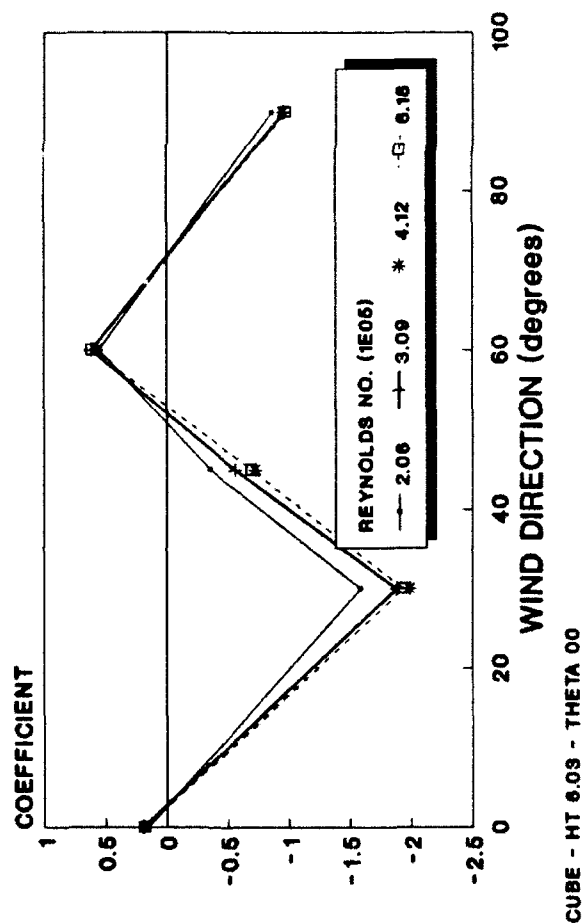
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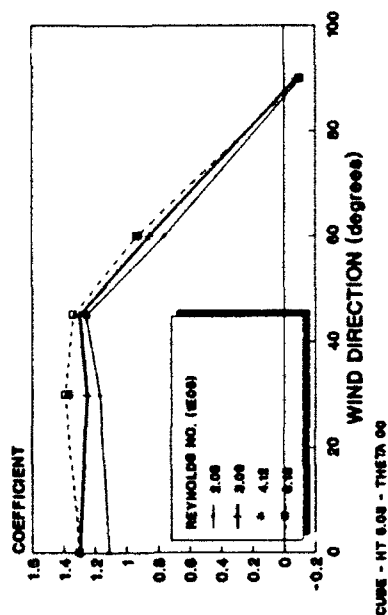
# MEAN FORCE COEFFICIENT LATERAL DIRECTION



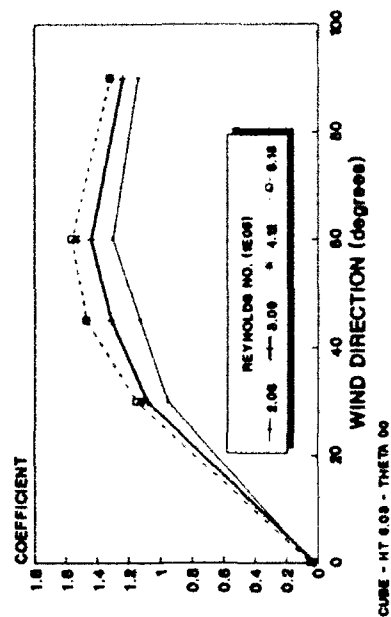
# MEAN MOMENT COEFFICIENT ROLL DIRECTION



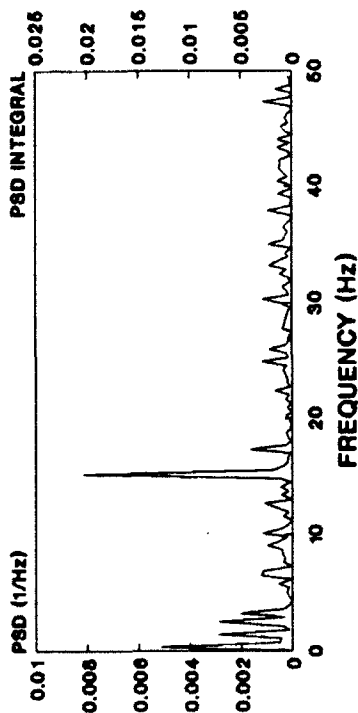
# MEAN MOMENT COEFFICIENT NORMAL DIRECTION



# MEAN MOMENT COEFFICIENT LATERAL DIRECTION



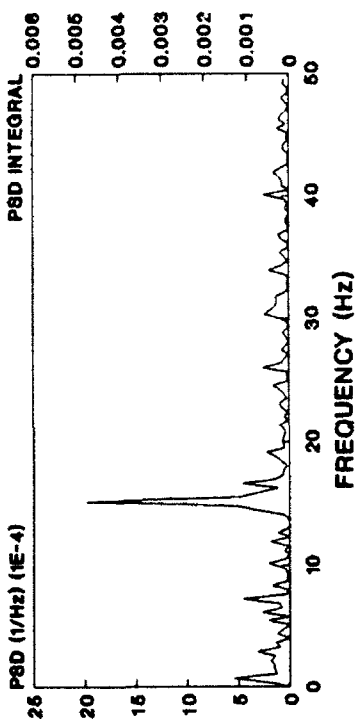
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PSD PSD INTEGRAL

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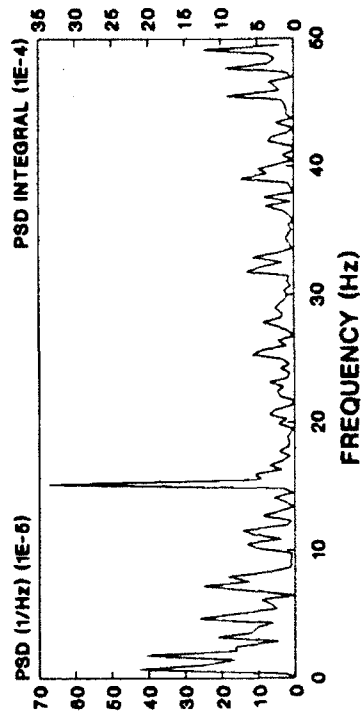
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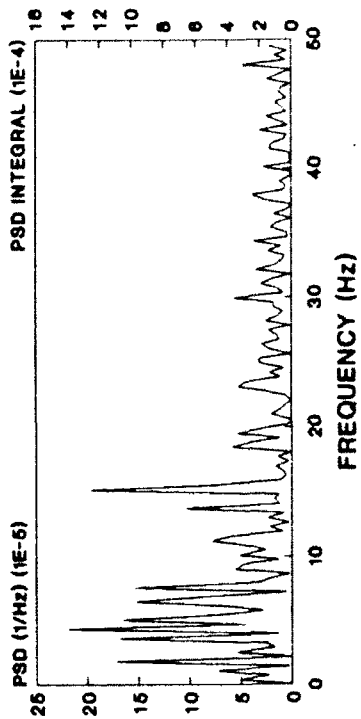
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PSD PSD INTEGRAL

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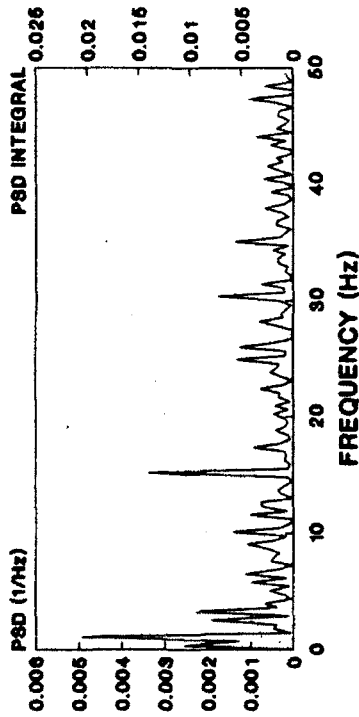


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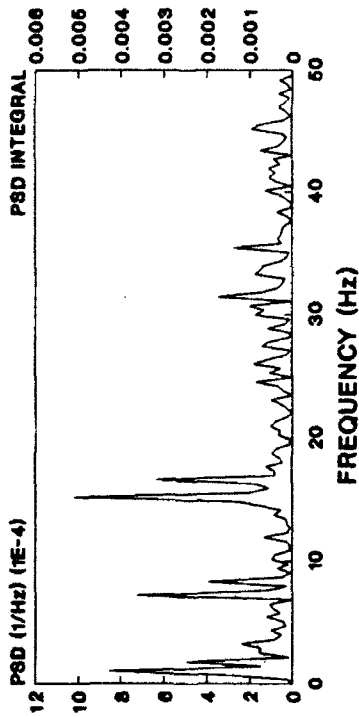
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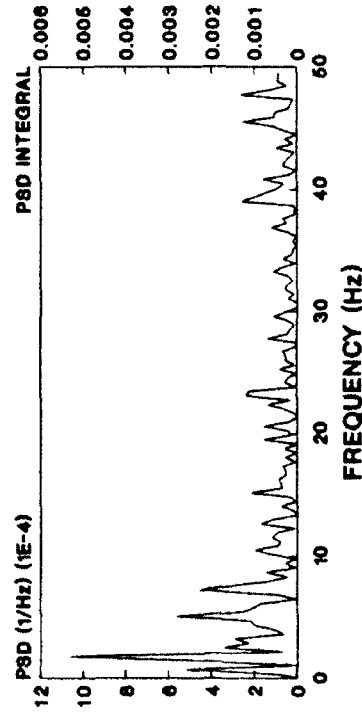
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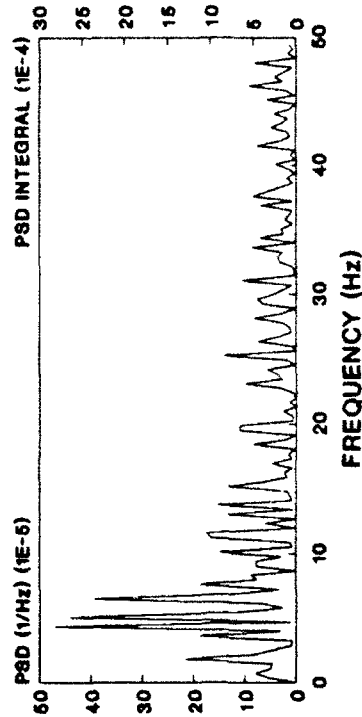
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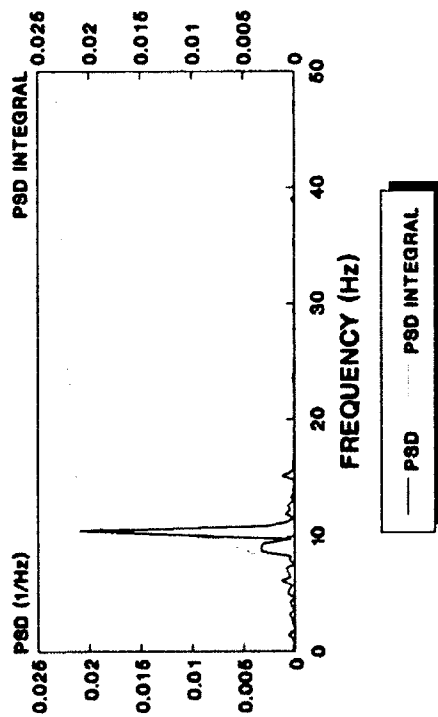
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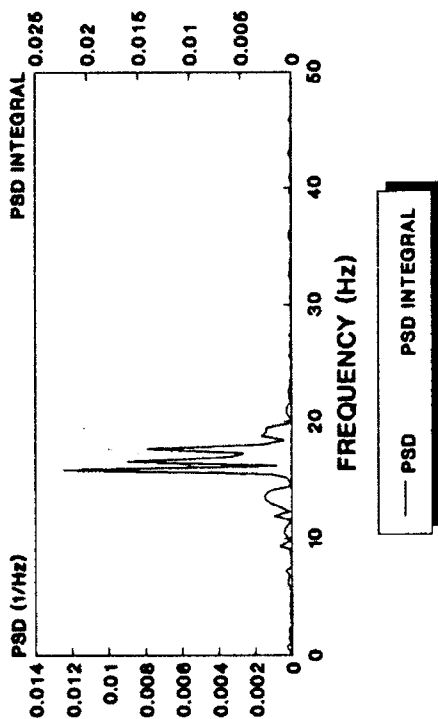
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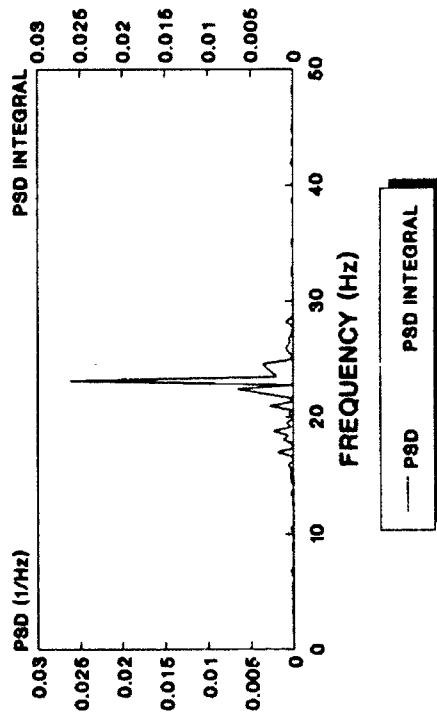
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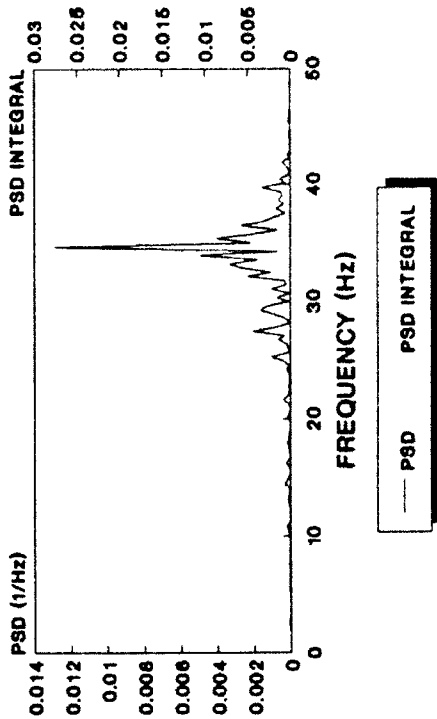
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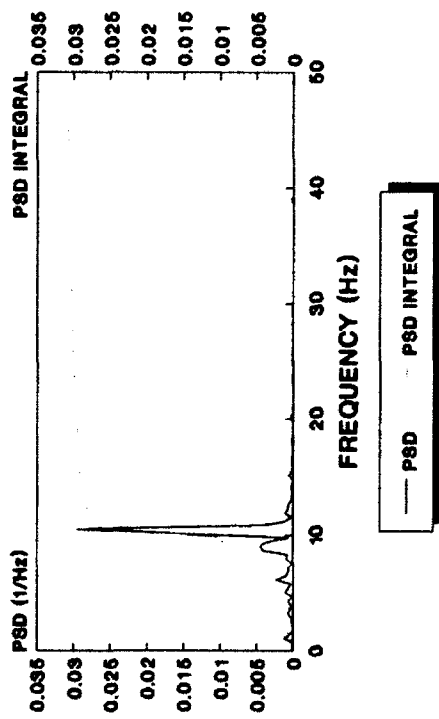
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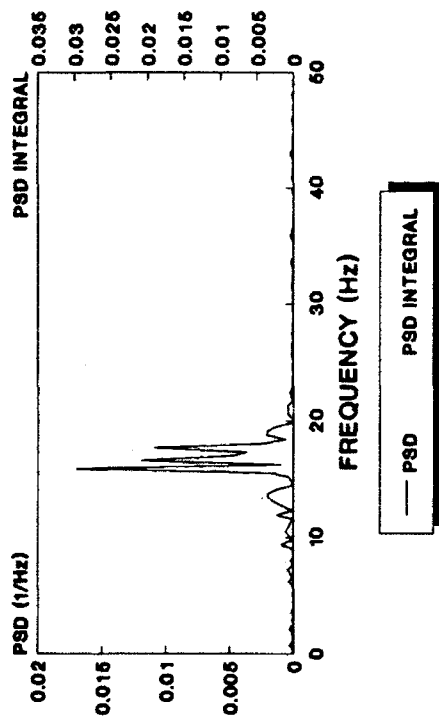
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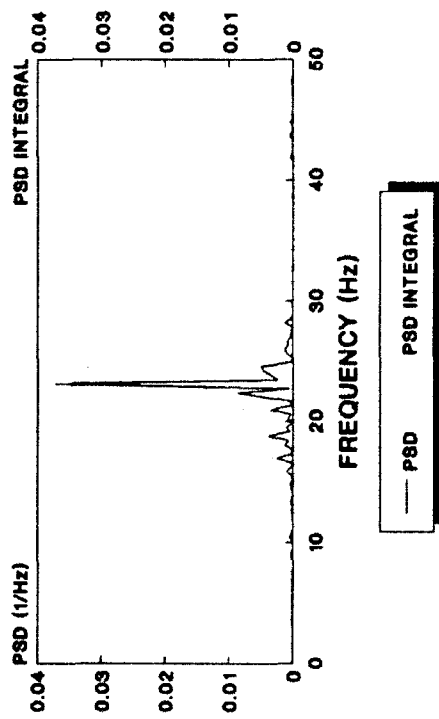
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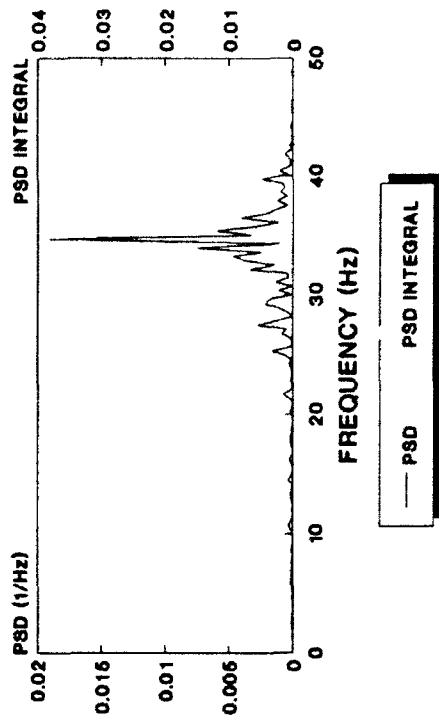
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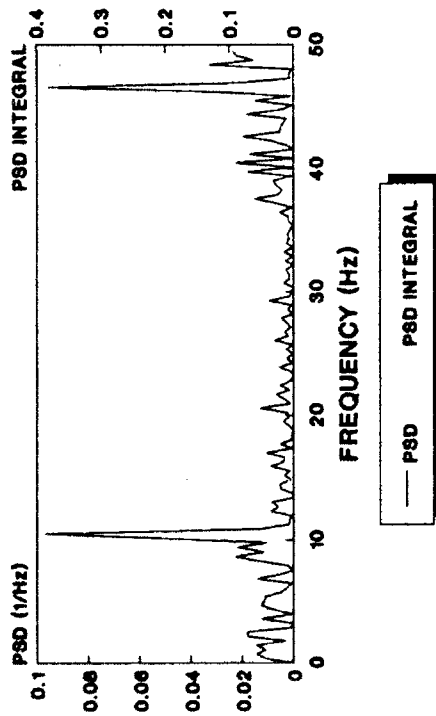
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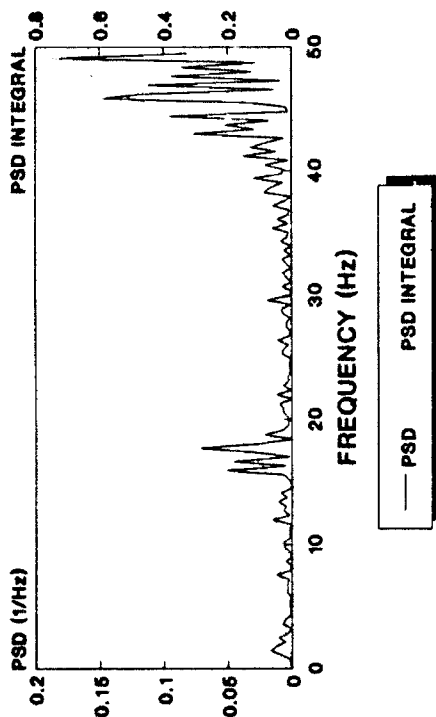
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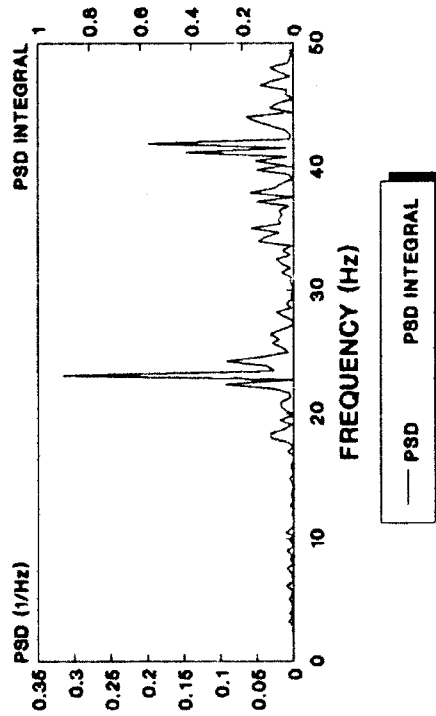
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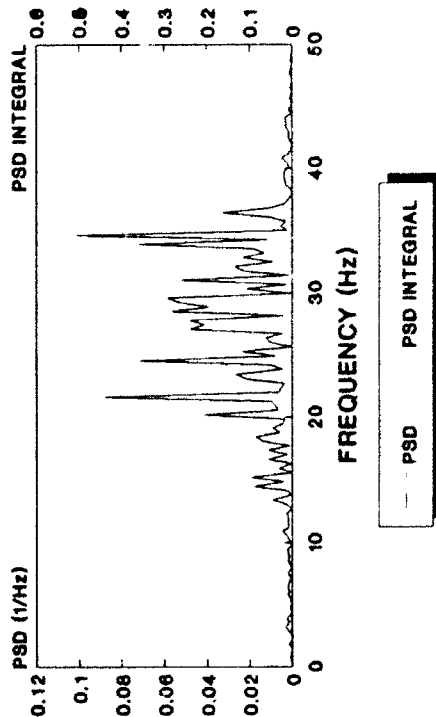
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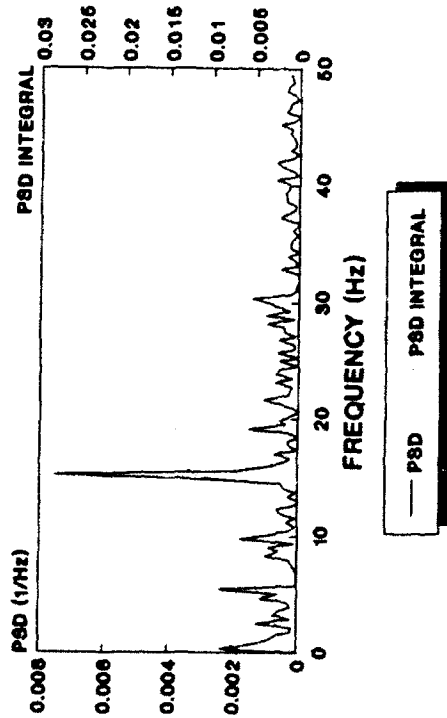
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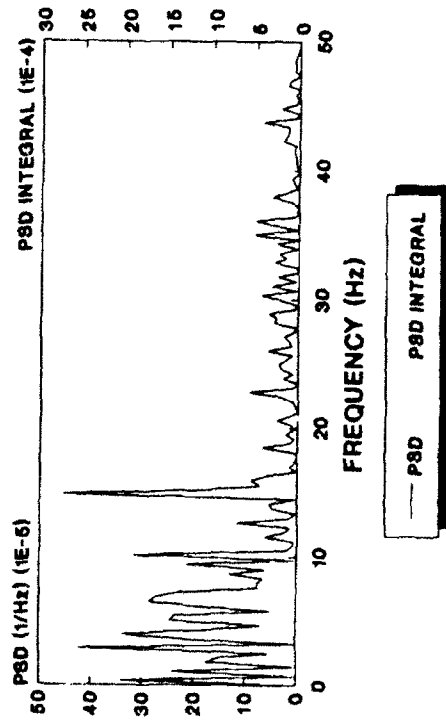
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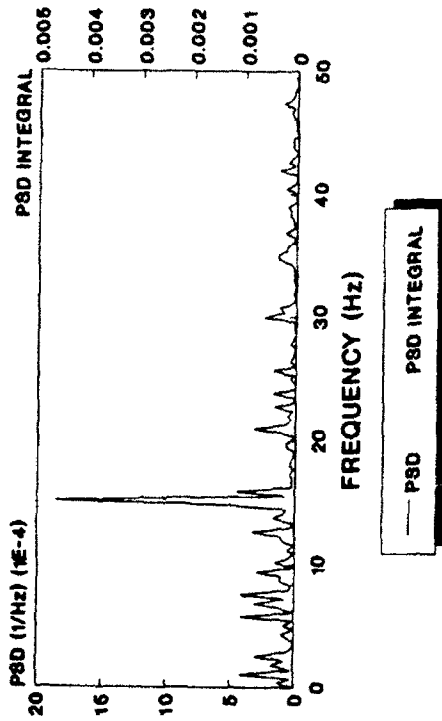
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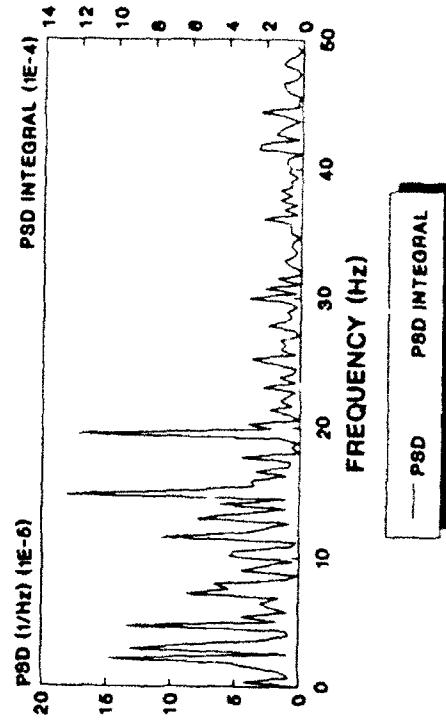
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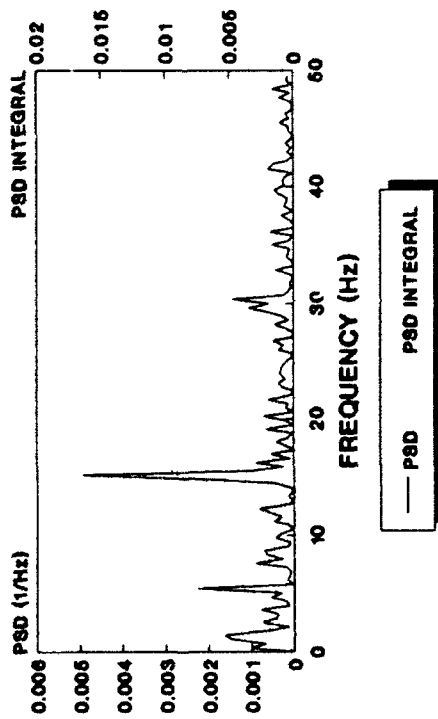
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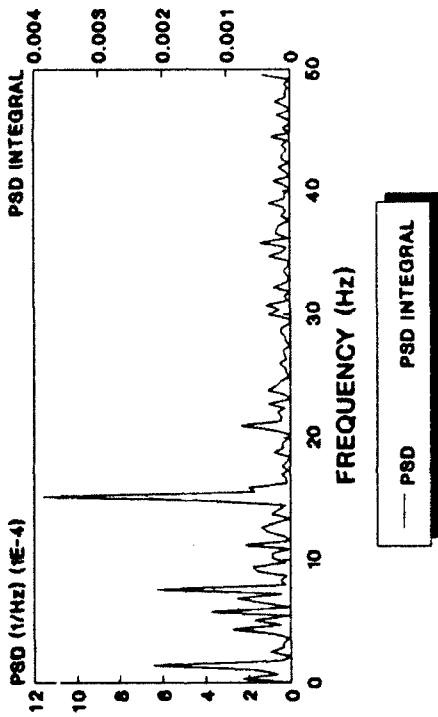
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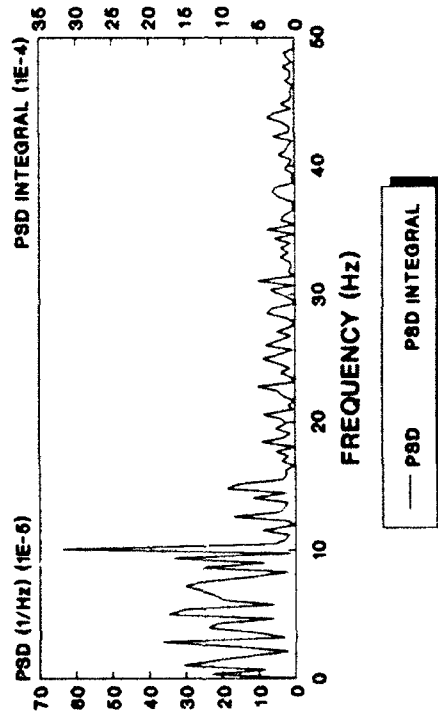
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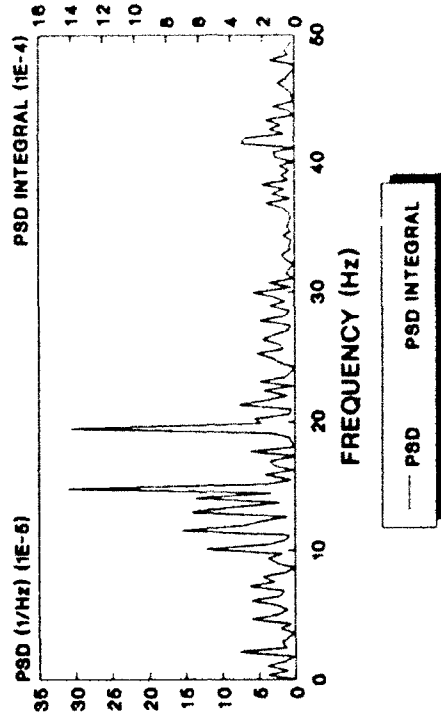
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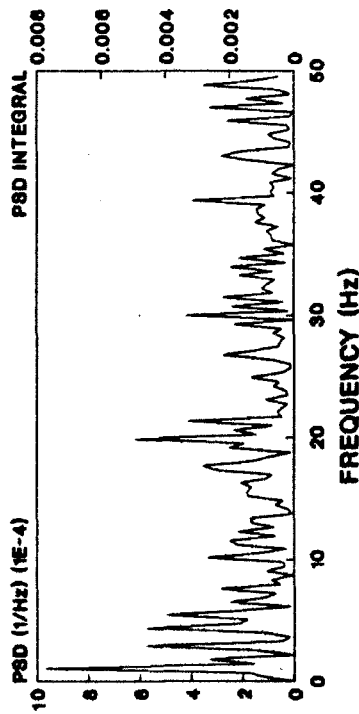
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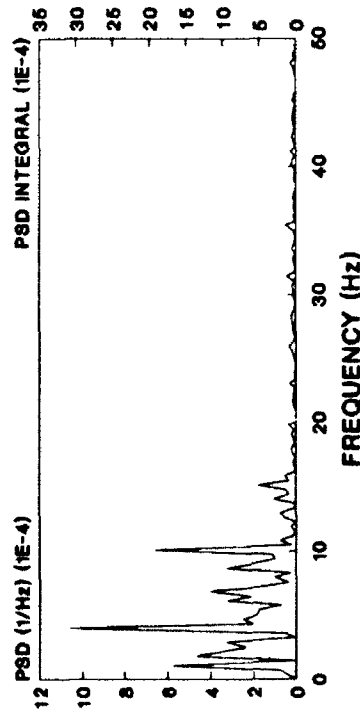
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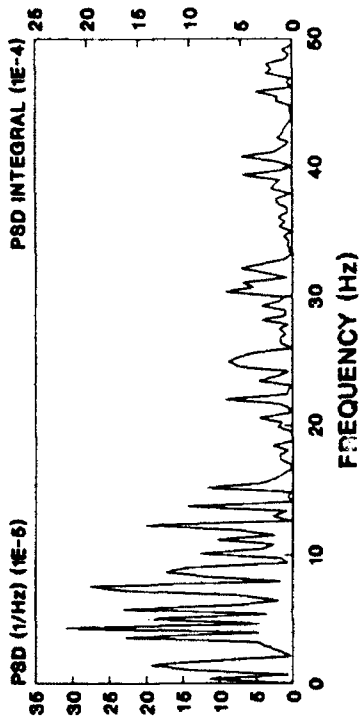
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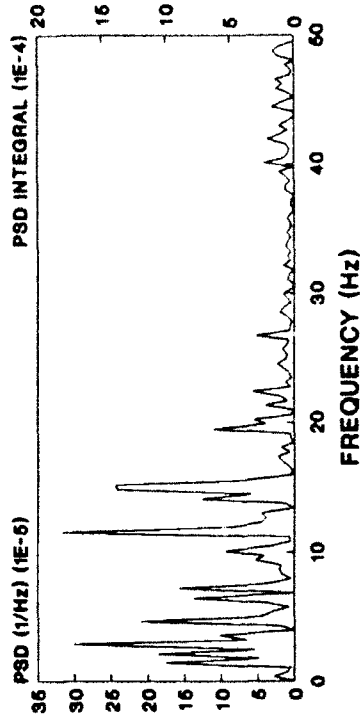
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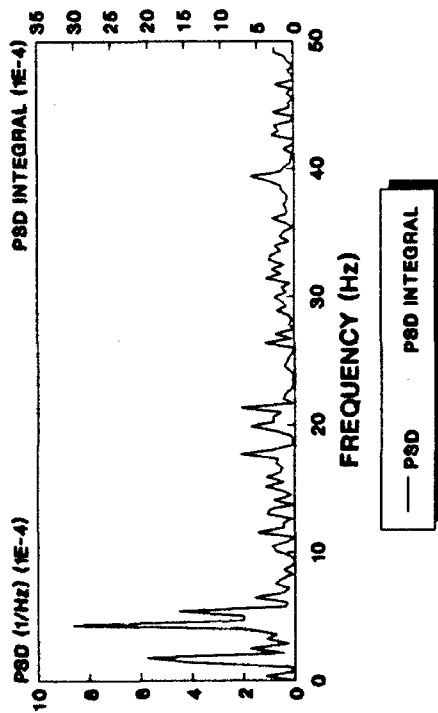
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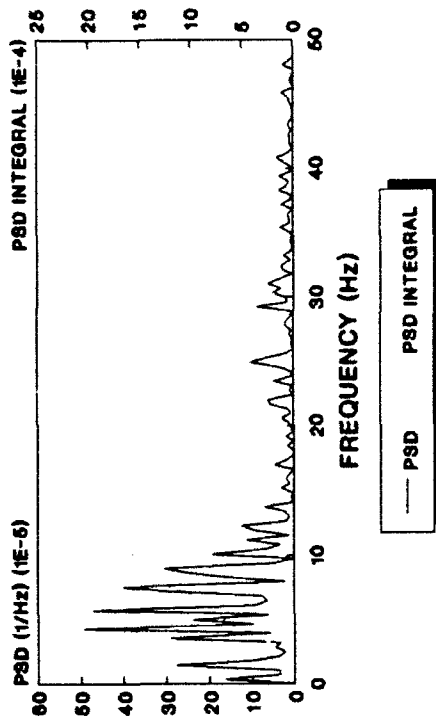
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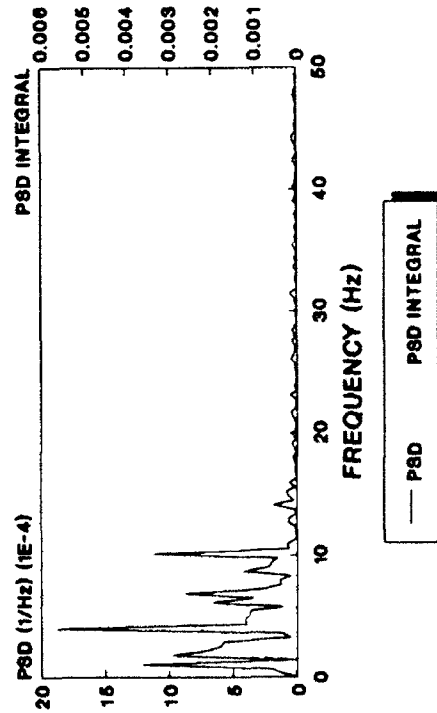
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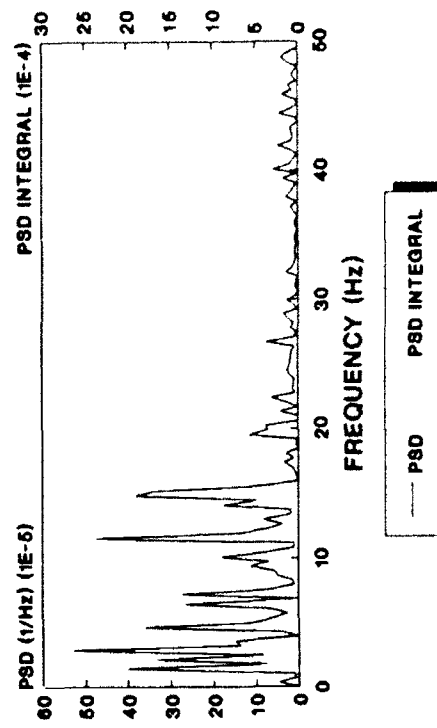
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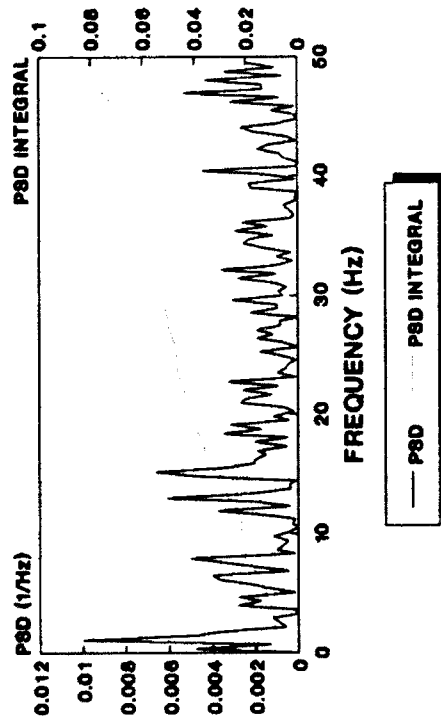
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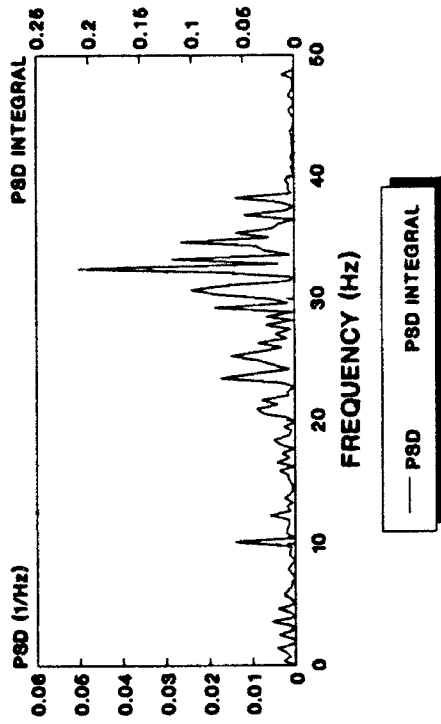


# **MOMENT COEFF - ROLL** **60 FT/SEC NOMINAL**



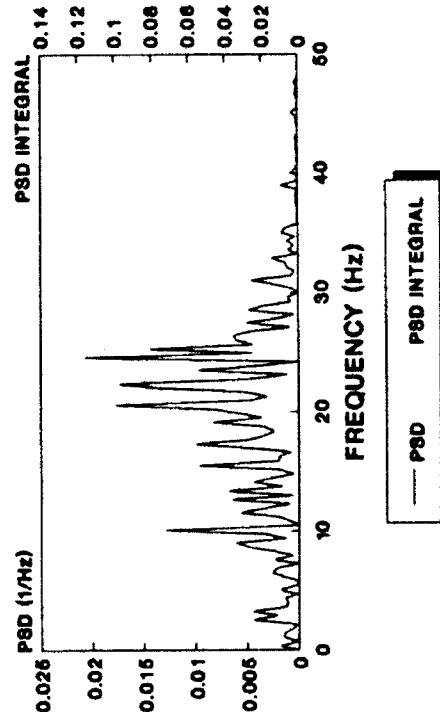
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# **MOMENT COEFF - ROLL** **90 FT/SEC NOMINAL**



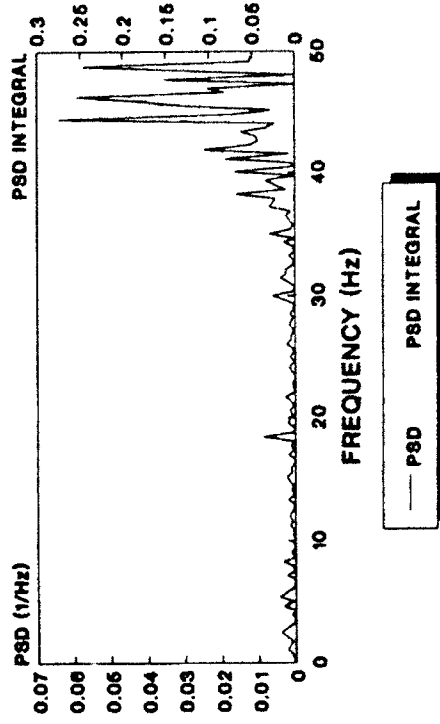
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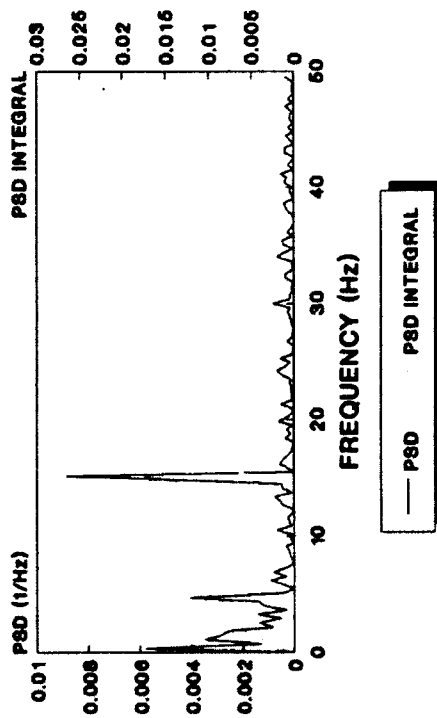
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# **MOMENT COEFF - ROLL** **180 FT/SEC NOMINAL**



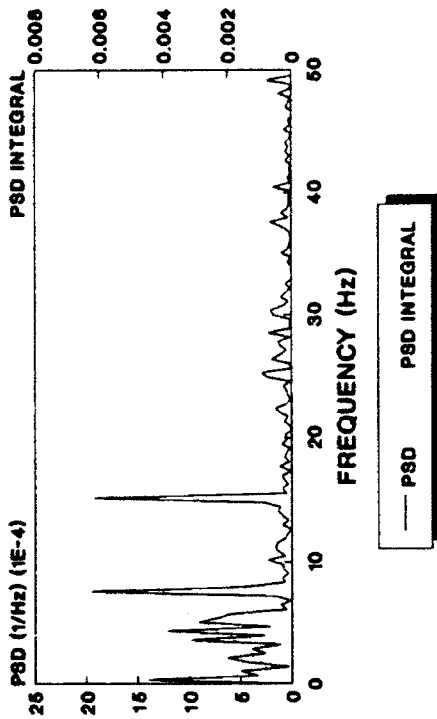
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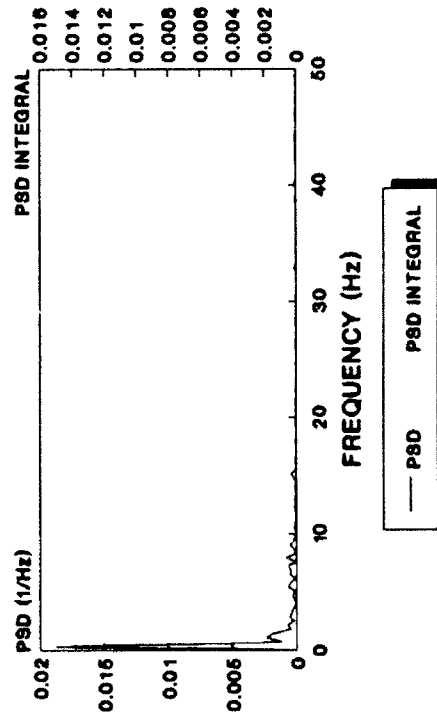
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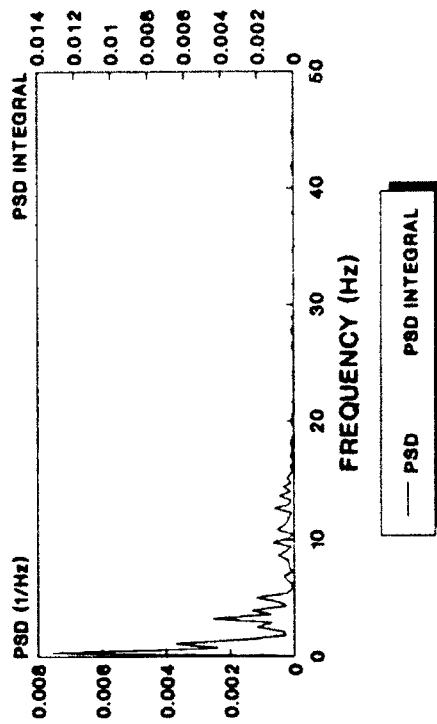
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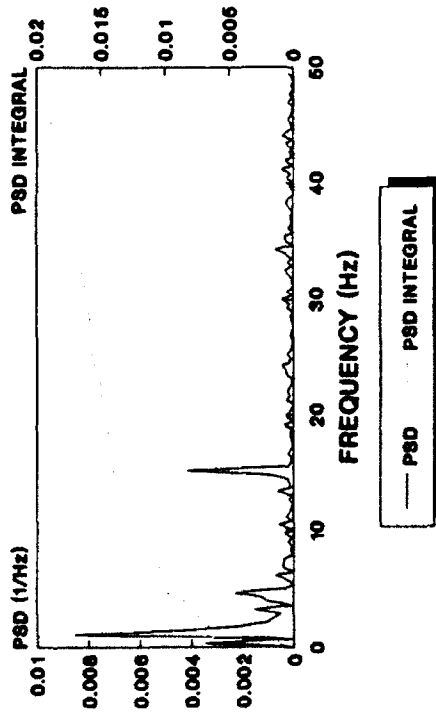
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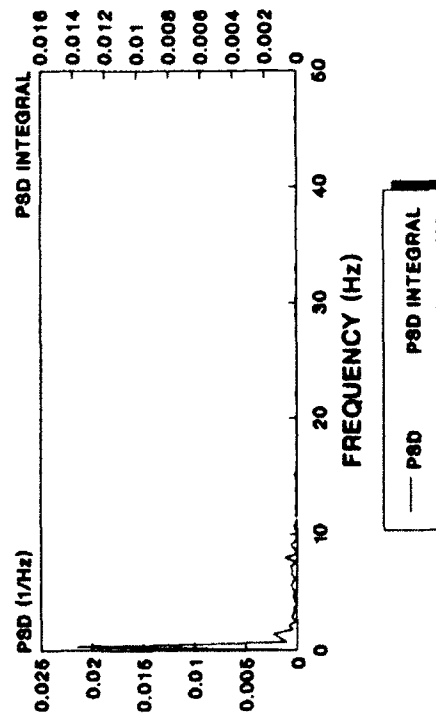
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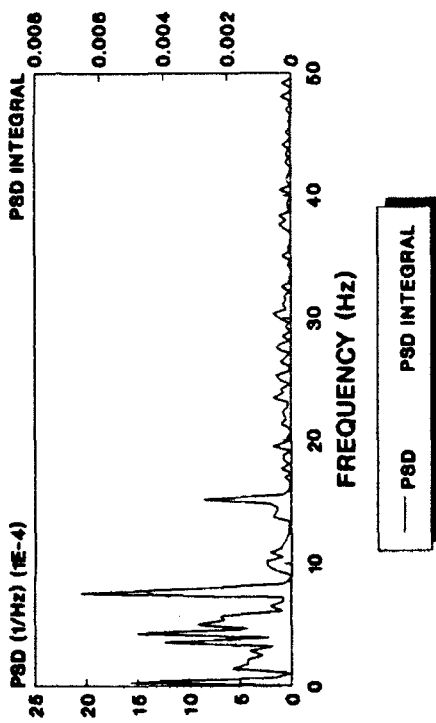
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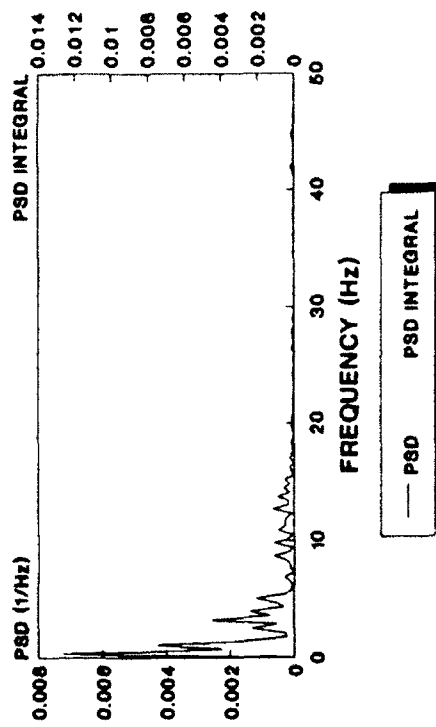
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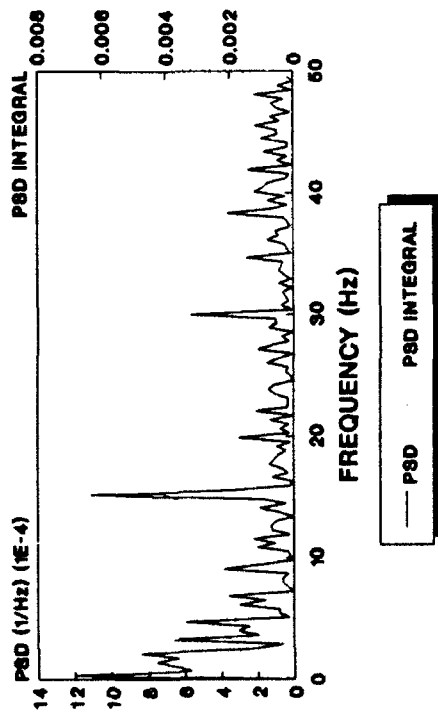
CUBE - HT 6.03 - THETA 00 - AZ - 046

# MOMENT COEFF - NORMAL 180 FT/SEC NOMINAL



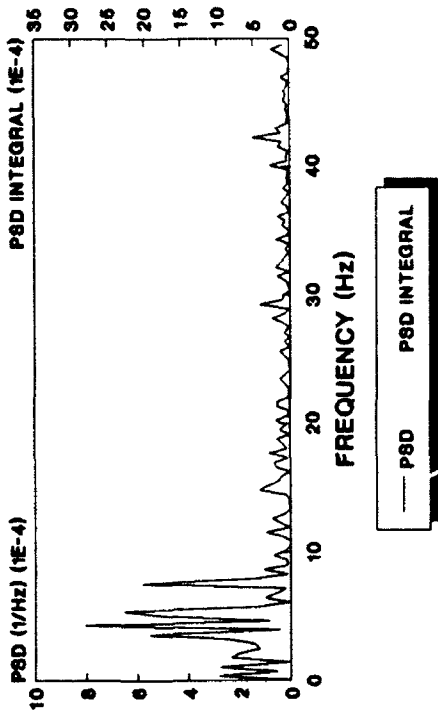
CUBE - HT 6.03 - THETA 00 - AZ - 046

# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



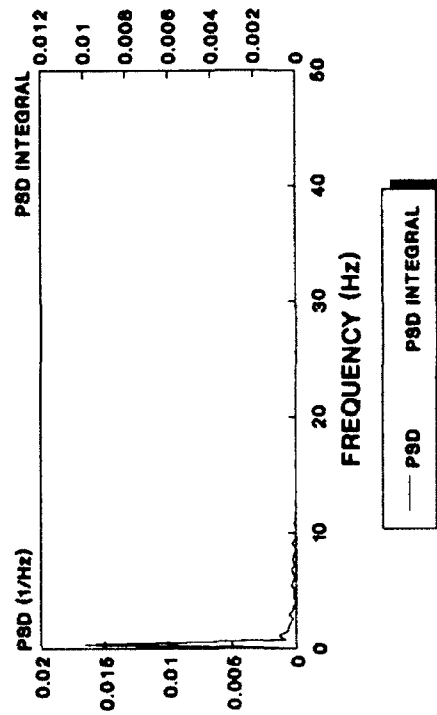
CUBE - HT 6.03 - THETA 00 - AZ 045

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



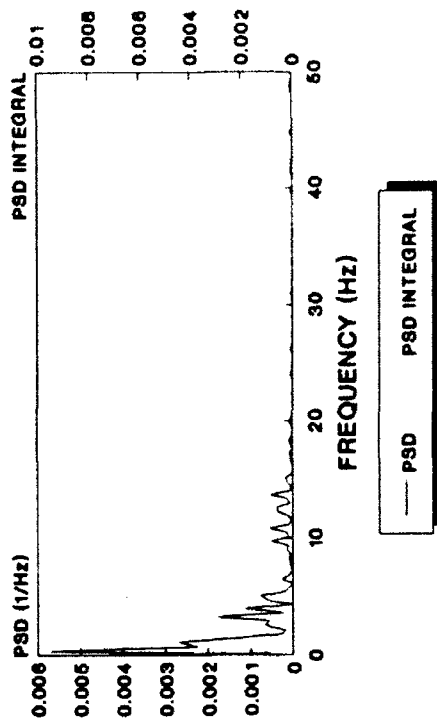
CUBE - HT 6.03 - THETA 00 - AZ 045

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



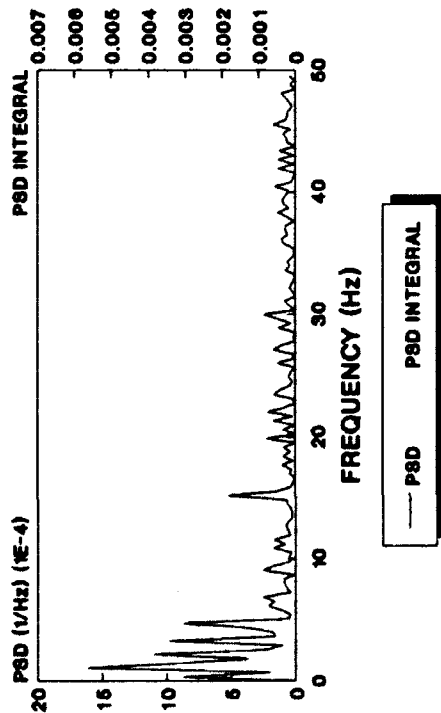
CUBE - HT 6.03 - THETA 00 - AZ 045

# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



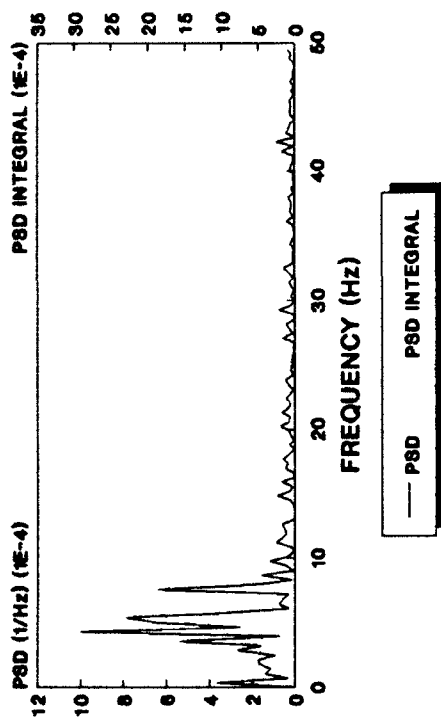
CUBE - HT 6.03 - THETA 00 - AZ 045

# MOMENT COEFF - LATERAL 60 FT/SEC NOMINAL



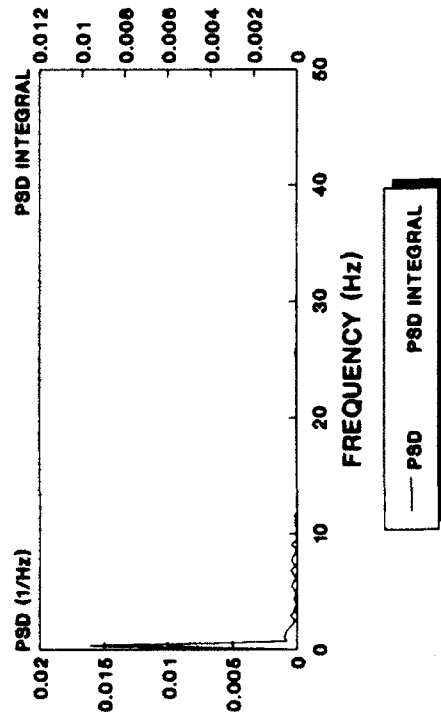
CUBE - HT 6.03 - THETA 00 - AZ 046

# MOMENT COEFF - LATERAL 90 FT/SEC NOMINAL



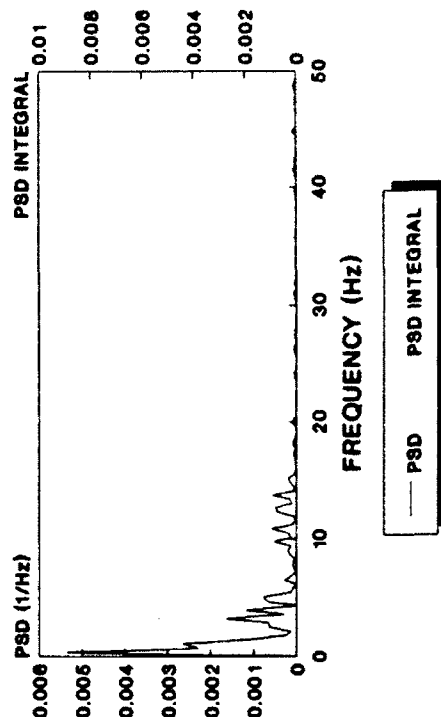
CUBE - HT 6.03 - THETA 00 - AZ 046

# MOMENT COEFF - LATERAL 120 FT/SEC NOMINAL



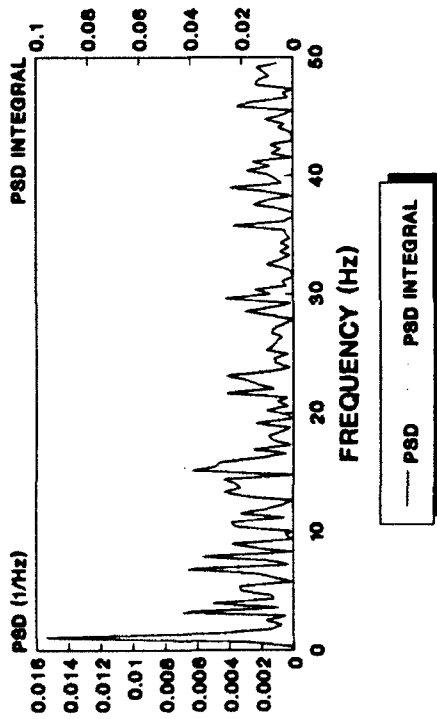
CUBE - HT 6.03 - THETA 00 - AZ 046

# MOMENT COEFF - LATERAL 180 FT/SEC NOMINAL



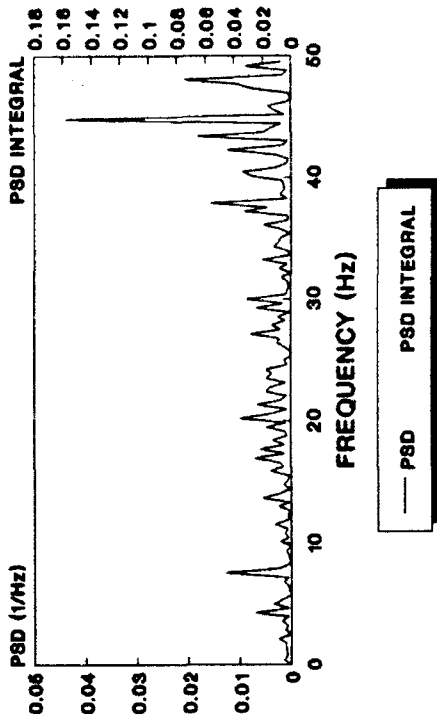
CUBE - HT 6.03 - THETA 00 - AZ 046

# MOMENT COEFF - ROLL 60 FT/SEC NOMINAL



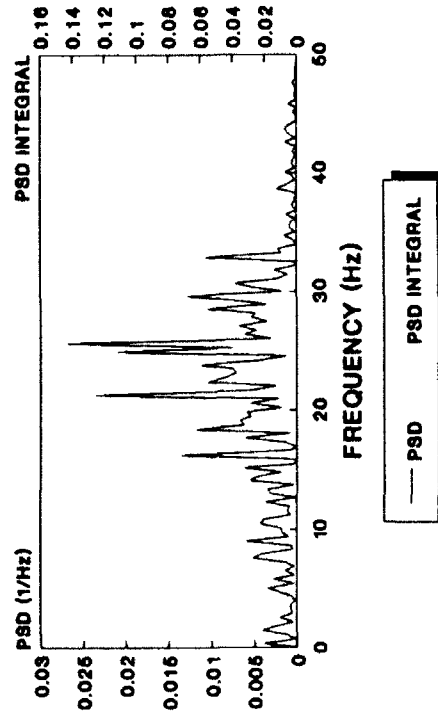
CUBE - HT 6.03 - THETA 00 - AZ - 046

# MOMENT COEFF - ROLL 90 FT/SEC NOMINAL



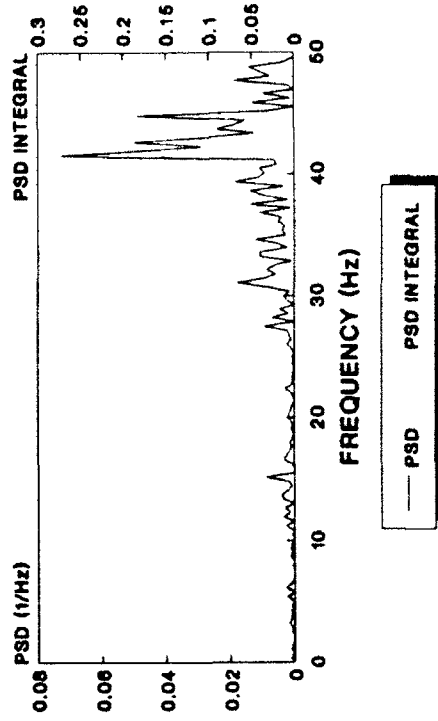
CUBE - HT 6.03 - THETA 00 - AZ - 045

# MOMENT COEFF - ROLL 120 FT/SEC NOMINAL



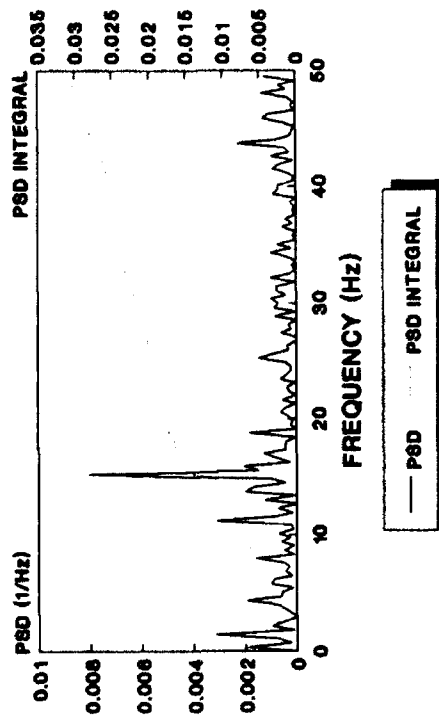
CUBE - HT 6.03 - THETA 00 - AZ - 046

# MOMENT COEFF - ROLL 180 FT/SEC NOMINAL



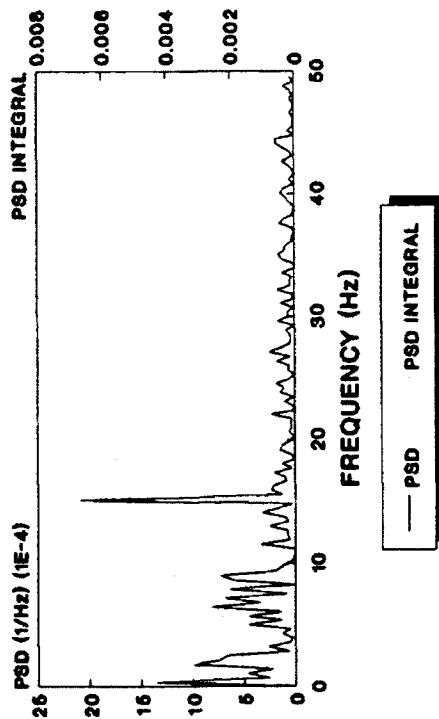
CUBE - HT 6.03 - THETA 00 - AZ - 045

# FORCE COEFF - NORMAL 60 FT/SEC NOMINAL



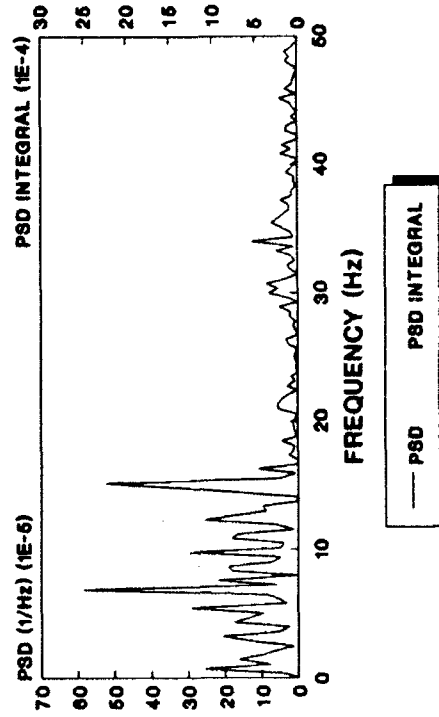
CUBE - HT 6.03 - THETA 00 - AZ - 040

# FORCE COEFF - NORMAL 90 FT/SEC NOMINAL



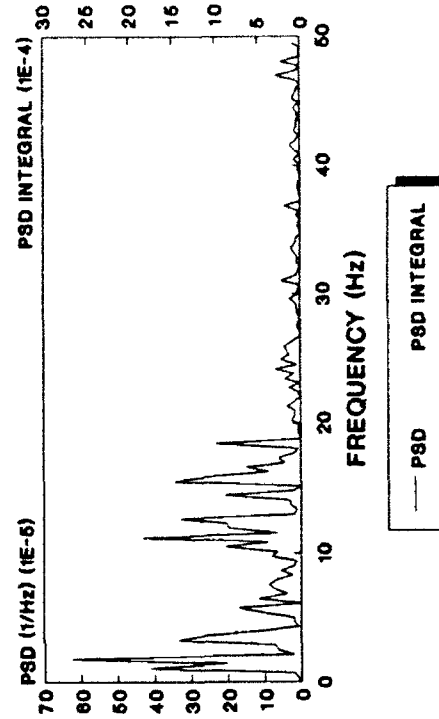
CUBE - HT 6.03 - THETA 00 - AZ - 080

# FORCE COEFF - NORMAL 120 FT/SEC NOMINAL



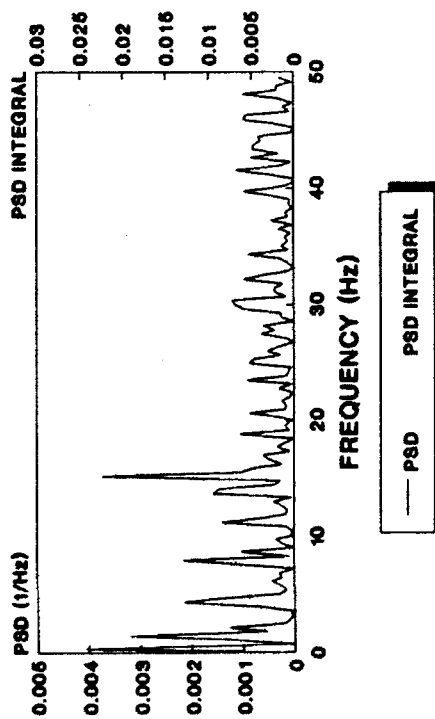
CUBE - HT 6.03 - THETA 00 - AZ - 040

# FORCE COEFF - NORMAL 180 FT/SEC NOMINAL



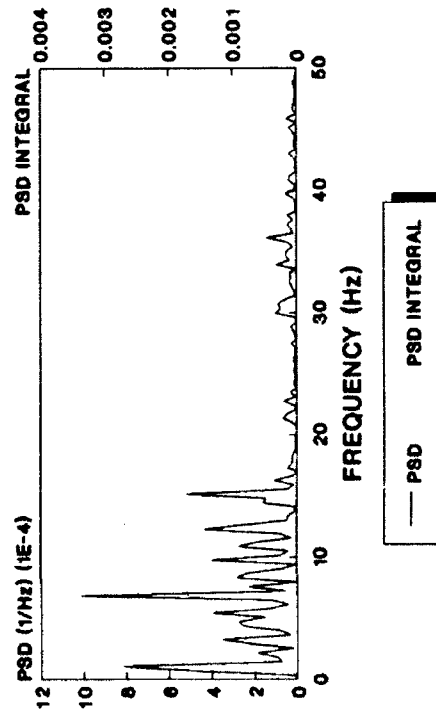
CUBE - HT 6.03 - THETA 00 - AZ - 080

# MOMENT COEFF - NORMAL 60 FT/SEC NOMINAL



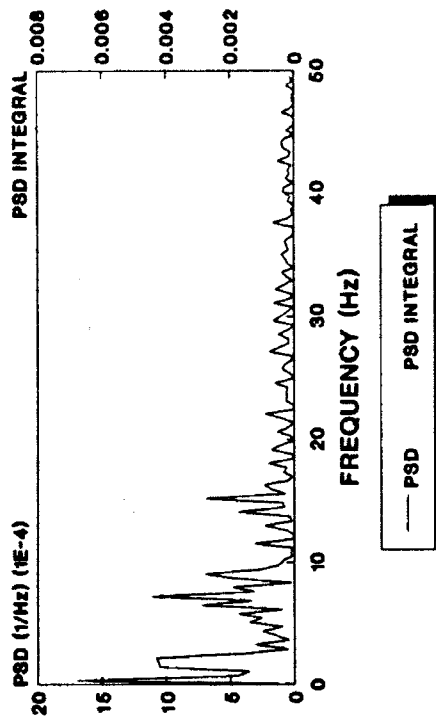
CUBE - HT 6.03 - THETA 00 - AZ - 060

# MOMENT COEFF - NORMAL 120 FT/SEC NOMINAL



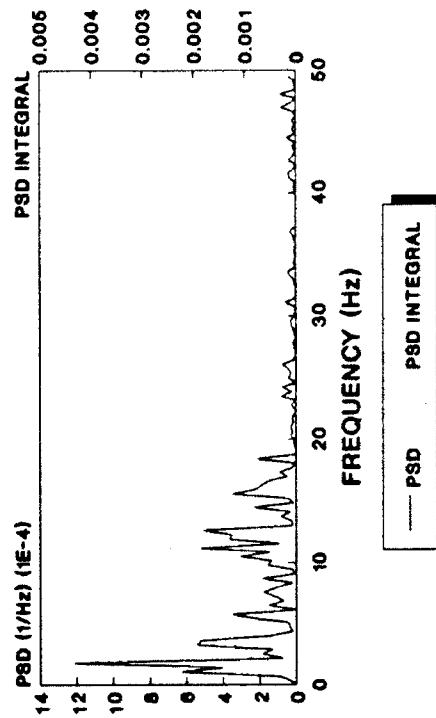
CUBE - HT 6.03 - THETA 00 - AZ - 060

# MOMENT COEFF - NORMAL 90 FT/SEC NOMINAL



CUBE - HT 6.03 - THETA 00 - AZ - 060

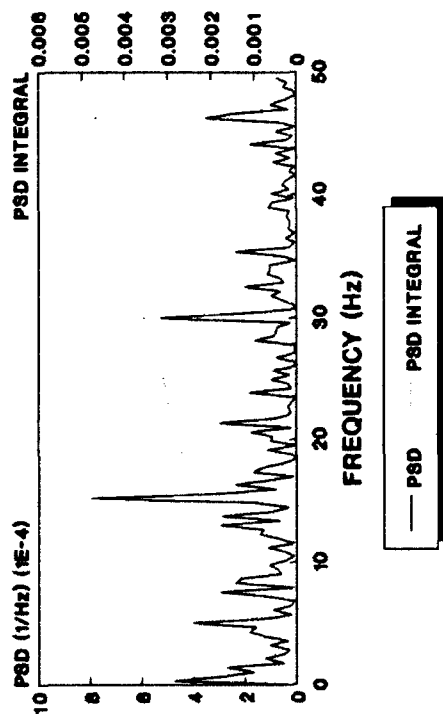
# MOMENT COEFF - NORMAL 180 FT/SEC NOMINAL



CUBE - HT 6.03 - THETA 00 - AZ - 060

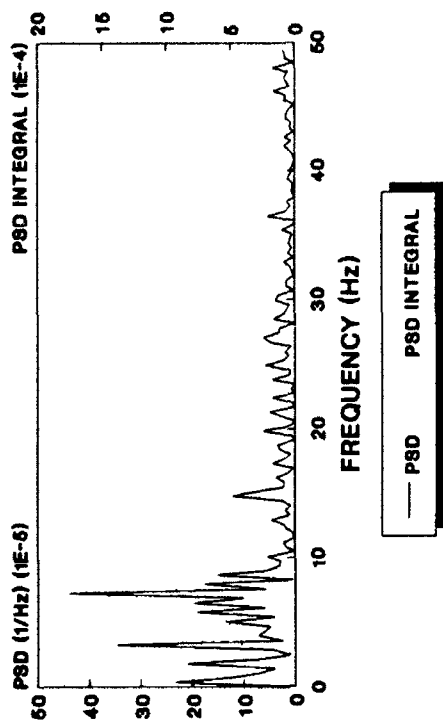


# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



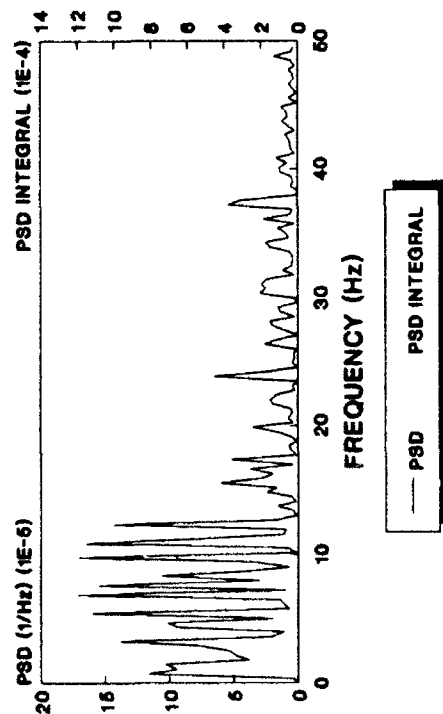
CUBE - HT 6.03 - THETA 00 - AZ 060

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



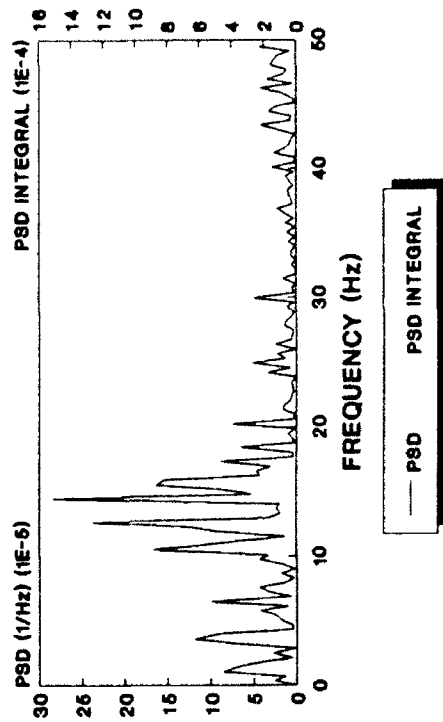
CUBE - HT 6.03 - THETA 00 - AZ 060

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



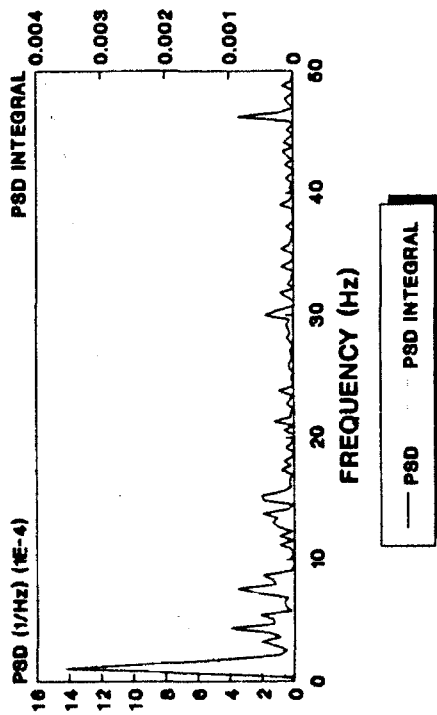
CUBE - HT 6.03 - THETA 00 - AZ 060

# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



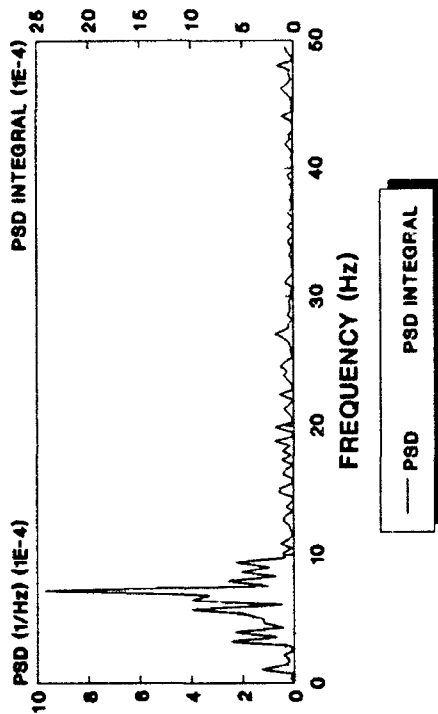
CUBE - HT 6.03 - THETA 00 - AZ 060

# MOMENT COEFF - LATERAL 60 FT/SEC NOMINAL



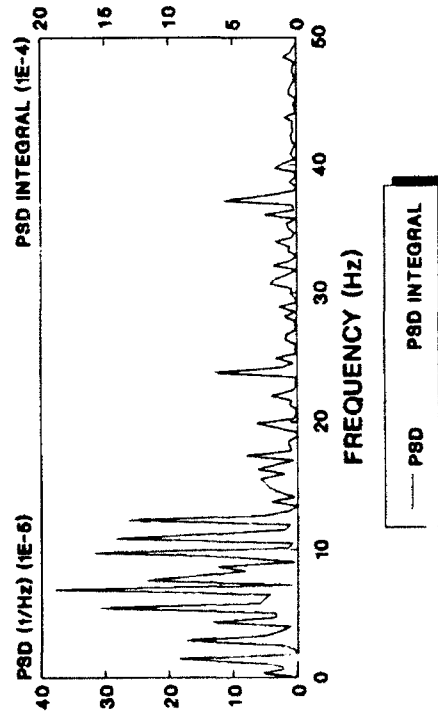
CUBE - HT 6.03 - THETA 00 - AZ 060

# MOMENT COEFF - LATERAL 90 FT/SEC NOMINAL



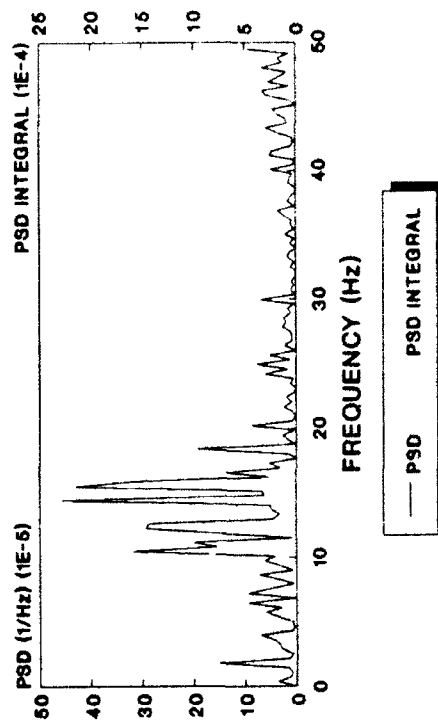
CUBE - HT 6.03 - THETA 00 - AZ 060

# MOMENT COEFF - LATERAL 120 FT/SEC NOMINAL



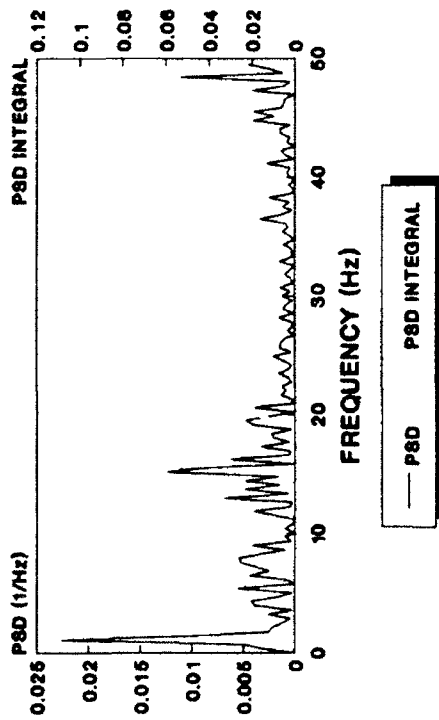
CUBE - HT 6.03 - THETA 00 - AZ 060

# MOMENT COEFF - LATERAL 180 FT/SEC NOMINAL



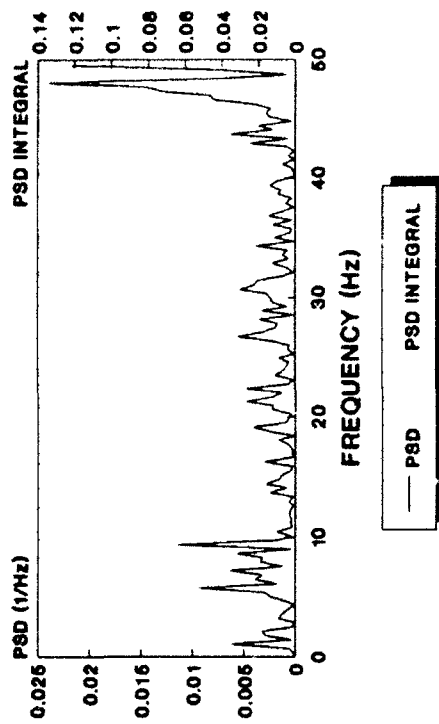
CUBE - HT 6.03 - THETA 00 - AZ 060

# **MOMENT COEFF - ROLL** **60 FT/SEC NOMINAL**



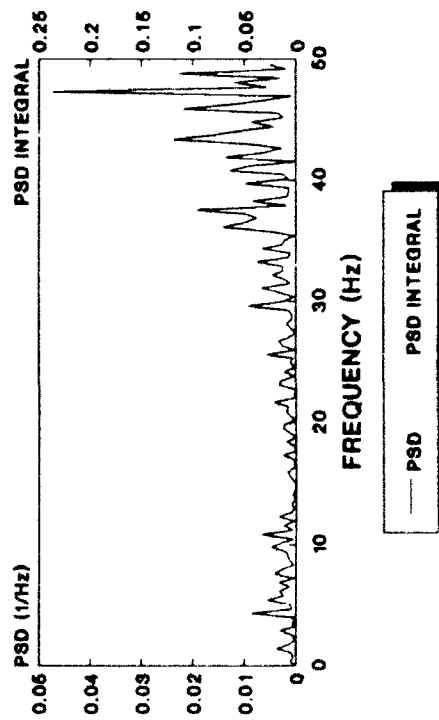
CUBE - HT 6.03 - THETA 00 - AZ - 060

# **MOMENT COEFF - ROLL** **90 FT/SEC NOMINAL**



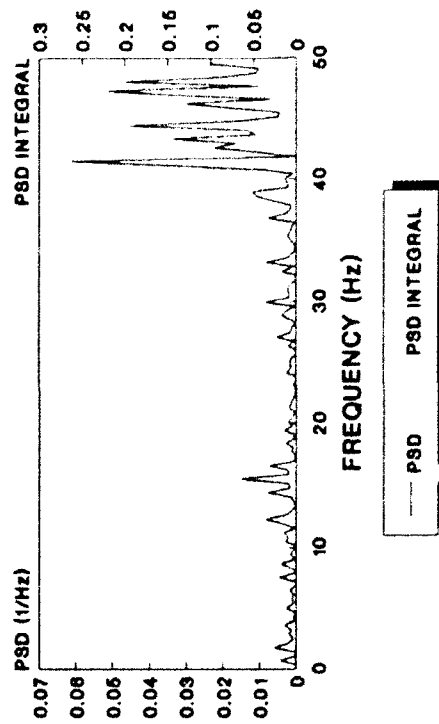
CUBE - HT 6.03 - THETA 00 - AZ - 060

# **MOMENT COEFF - ROLL** **120 FT/SEC NOMINAL**



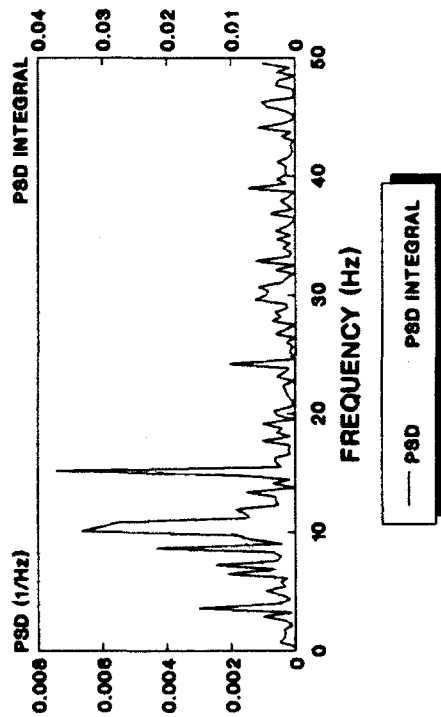
CUBE - HT 6.03 - THETA 00 - AZ - 060

# **MOMENT COEFF - ROLL** **180 FT/SEC NOMINAL**



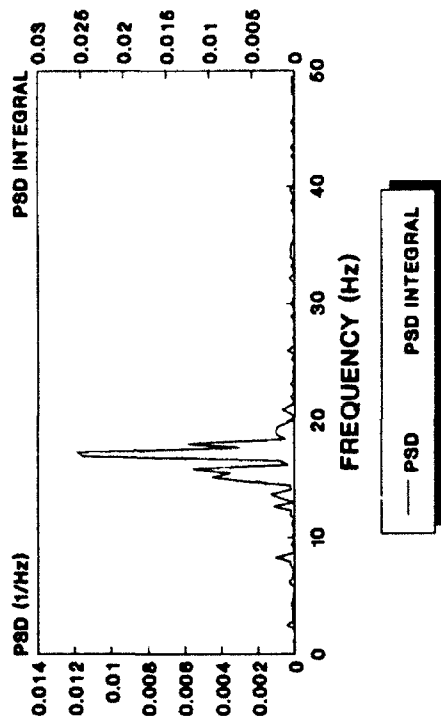
CUBE - HT 6.03 - THETA 00 - AZ - 060

# FORCE COEFF - NORMAL 60 FT/SEC NOMINAL



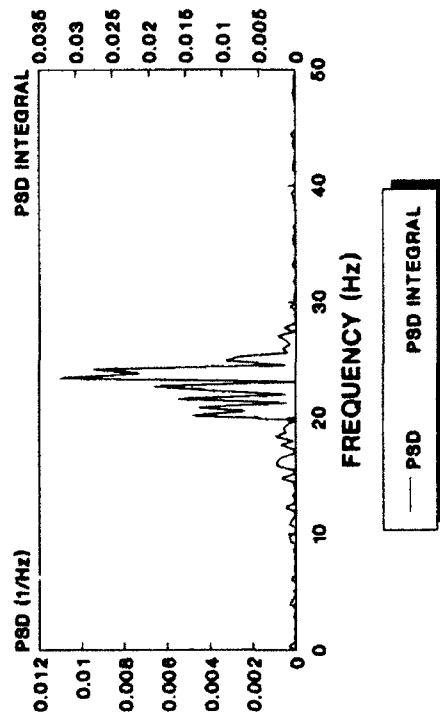
CUBE - HT 6.03 - THETA 00 - AZ - 090

# FORCE COEFF - NORMAL 90 FT/SEC NOMINAL



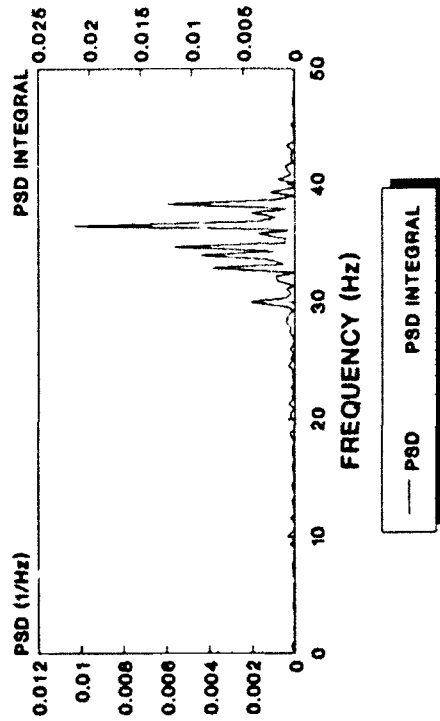
CUBE - HT 6.03 - THETA 00 - AZ - 090

# FORCE COEFF - NORMAL 120 FT/SEC NOMINAL



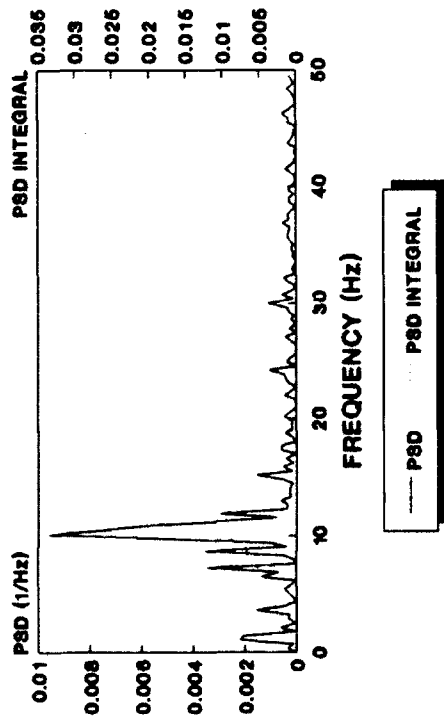
CUBE - HT 6.03 - THETA 00 - AZ - 090

# FORCE COEFF - NORMAL 180 FT/SEC NOMINAL



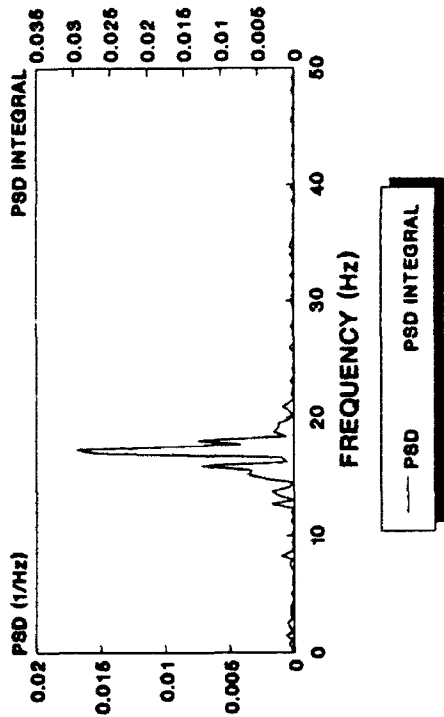
CUBE - HT 6.03 - THETA 00 - AZ - 090

# MOMENT COEFF - NORMAL 60 FT/SEC NOMINAL



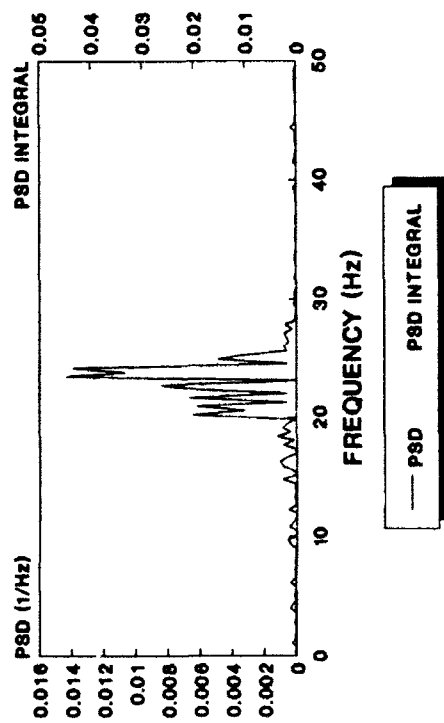
CUBE - HT 6.03 - THETA 00 - AZ - 090

# MOMENT COEFF - NORMAL 90 FT/SEC NOMINAL



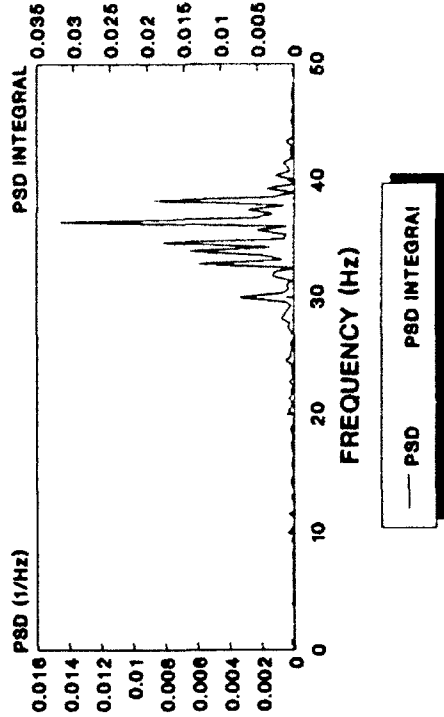
CUBE - HT 6.03 - THETA 00 - AZ - 090

# MOMENT COEFF - NORMAL 120 FT/SEC NOMINAL



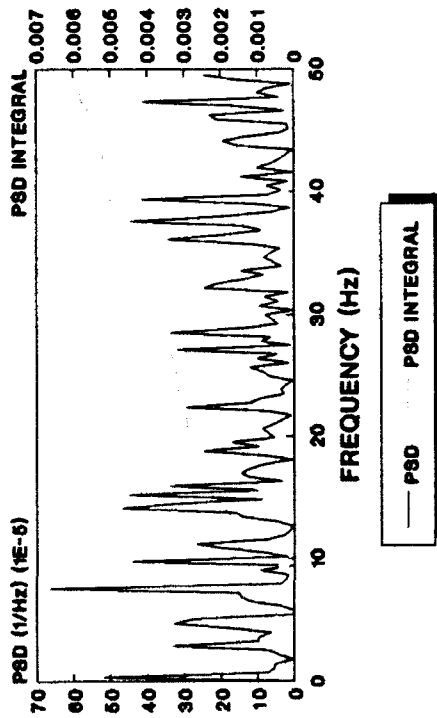
CUBE - HT 6.03 - THETA 00 - AZ - 090

# MOMENT COEFF - NORMAL 180 FT/SEC NOMINAL



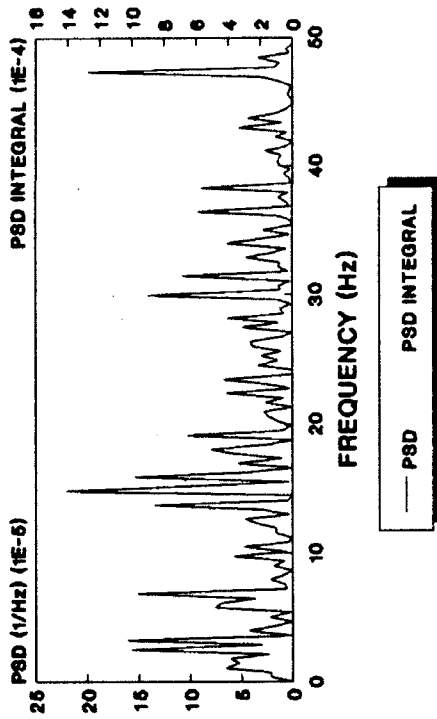
CUBE - HT 6.03 - THETA 00 - AZ - 090

# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



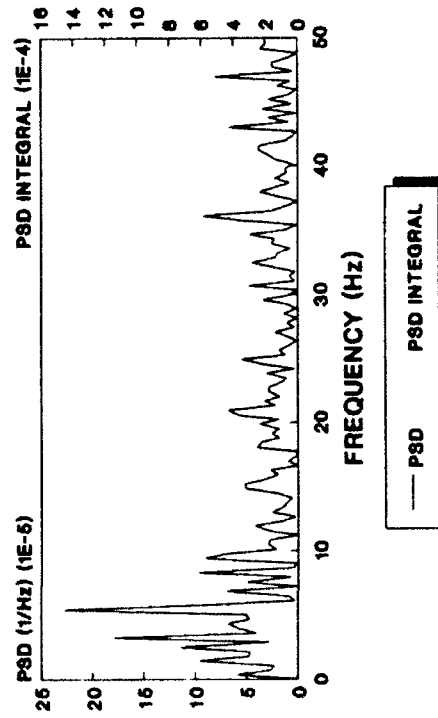
CUBE - HT 8.03 - THETA 00 - AZ 090

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



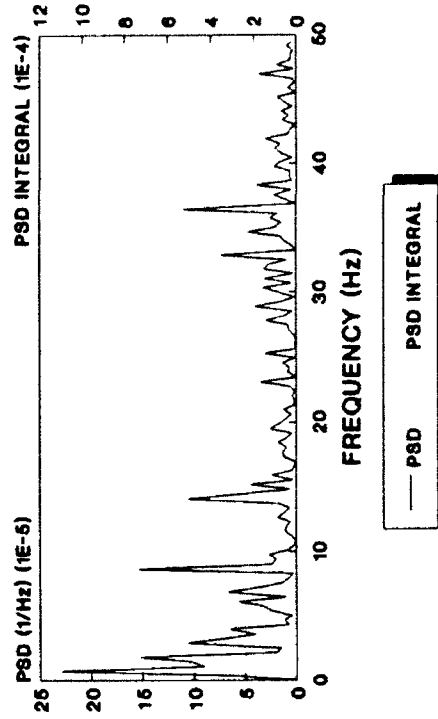
CUBE - HT 8.03 - THETA 00 - AZ 090

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



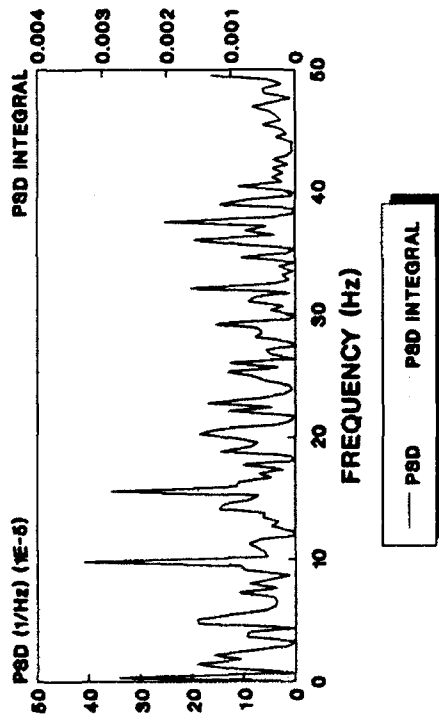
CUBE - HT 8.03 - THETA 00 - AZ 090

# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



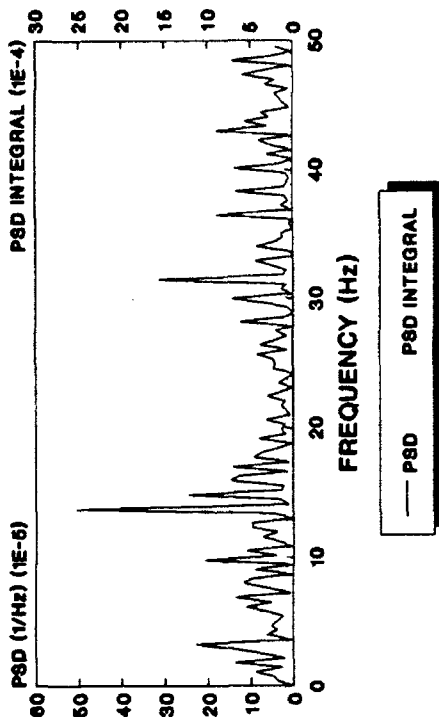
CUBE - HT 8.03 - THETA 00 - AZ 090

# **MOMENT COEFF - LATERAL** **60 FT/SEC NOMINAL**



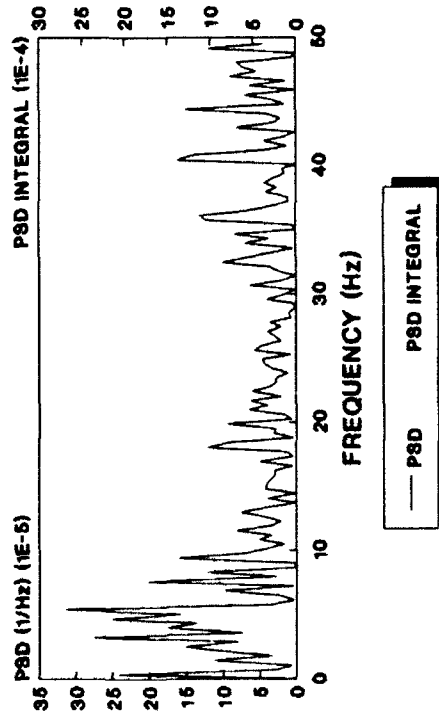
CUBE - HT 6.03 - THETA 00 - AZ 090

# **MOMENT COEFF - LATERAL** **90 FT/SEC NOMINAL**



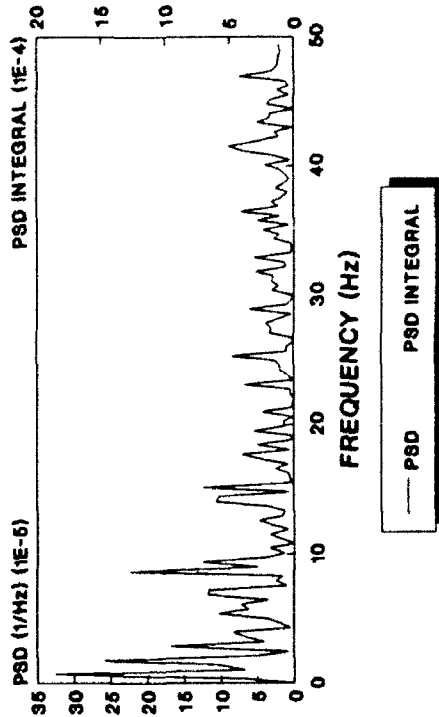
CUBE - HT 6.03 - THETA 00 - AZ 090

# **MOMENT COEFF - LATERAL** **120 FT/SEC NOMINAL**



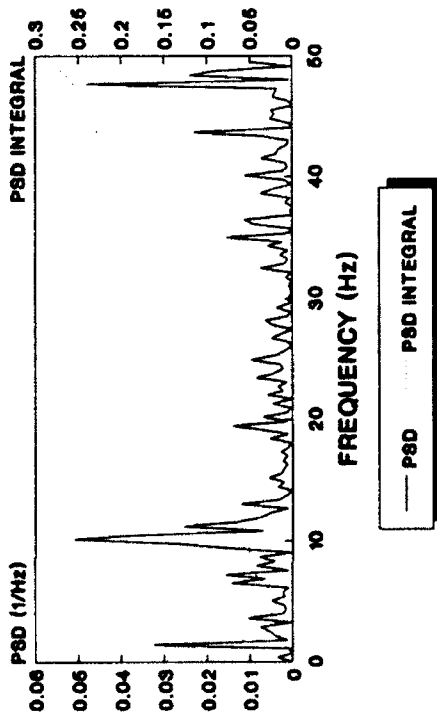
CUBE - HT 6.03 - THETA 00 - AZ 090

# **MOMENT COEFF - LATERAL** **180 FT/SEC NOMINAL**



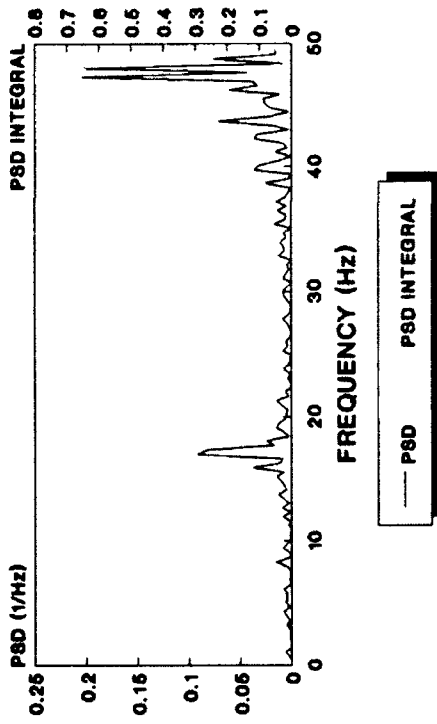
CUBE - HT 6.03 - THETA 00 - AZ 090

# MOMENT COEFF - ROLL 60 FT/SEC NOMINAL



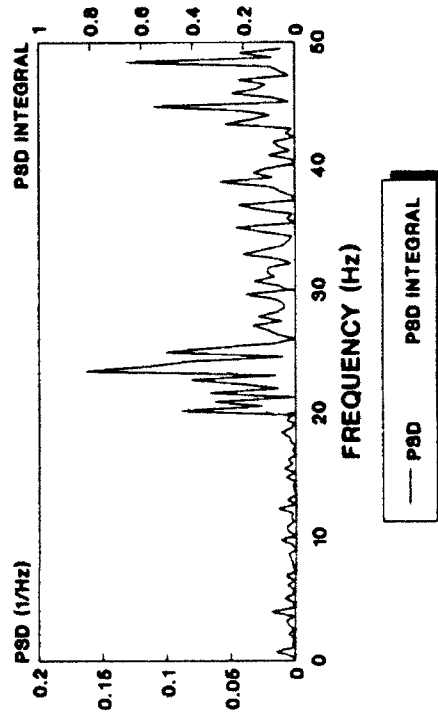
CUBE - HT 6.03 - THETA 00 - AZ - 090

# MOMENT COEFF - ROLL 90 FT/SEC NOMINAL



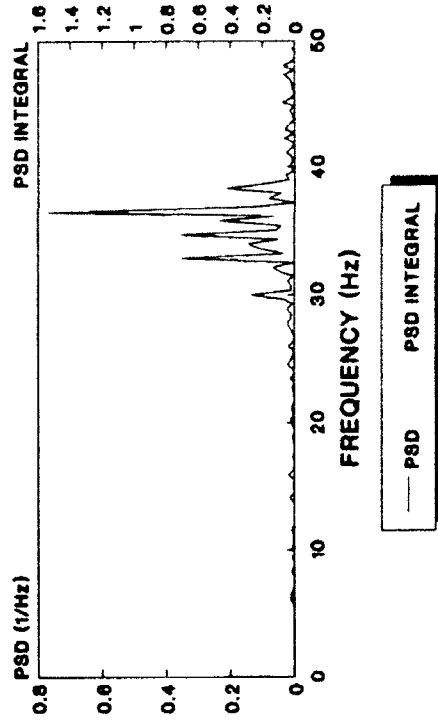
CUBE - HT 6.03 - THETA 00 - AZ - 090

# MOMENT COEFF - ROLL 120 FT/SEC NOMINAL



CUBE - HT 6.03 - THETA 00 - AZ - 090

# MOMENT COEFF - ROLL 180 FT/SEC NOMINAL



CUBE - HT 6.03 - THETA 00 - AZ - 090



## DATA REPORT

SHAPE:	CUBE
DECLINATION [THETA (degrees)]:	0
DIMENSIONS [LxWxH (in)]:	7.66 x 7.91 x 7.91
WEIGHT (gm):	873.8
TORSION FREQUENCY (Hz):	40
LATERAL (SIDE BEND) FREQUENCY (Hz):	69
NORMAL (AFT BEND) FREQUENCY (Hz):	69
AZIMUTHS (degrees):	0, 30, 45, 60

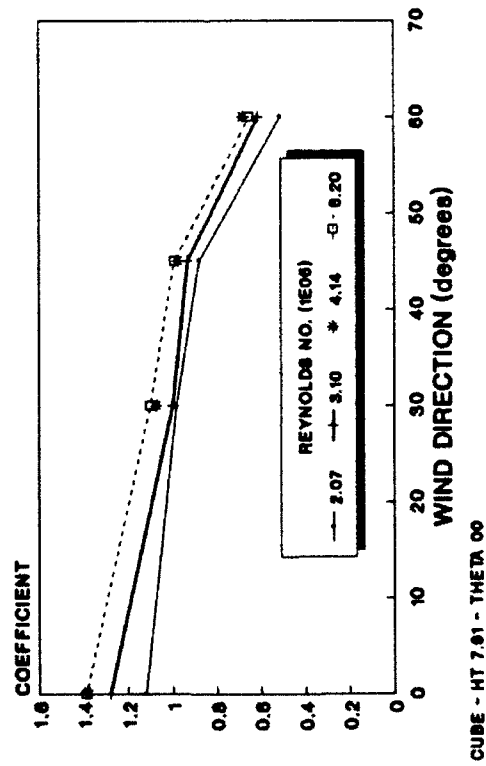
### GRAPH CORRECTIONS:

- The mean value of the **ROLL** moment coefficients should be divided by 12.
- The PSD and PSD Integral values of the **ROLL** moment coefficients should be divided by 144.

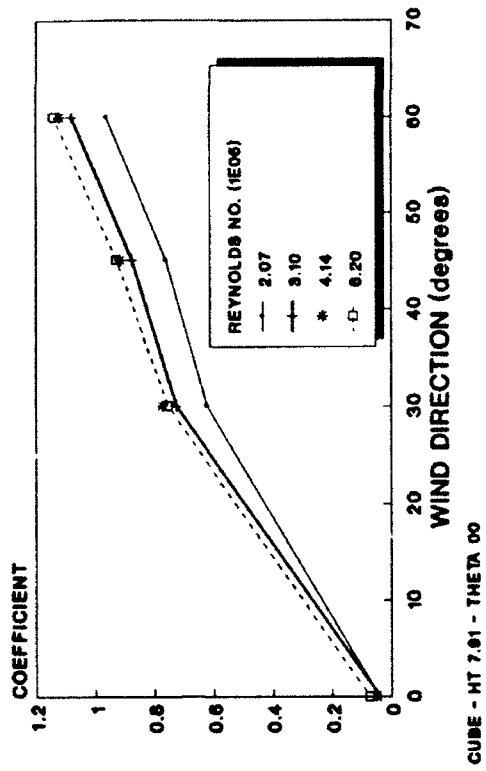
### OBSERVATIONS:

- Very good shedding seen in the lateral and roll data at 0 degrees azimuth. One of the best examples of a near single frequency shed.
- 15.176 Hz spike observed in the data.

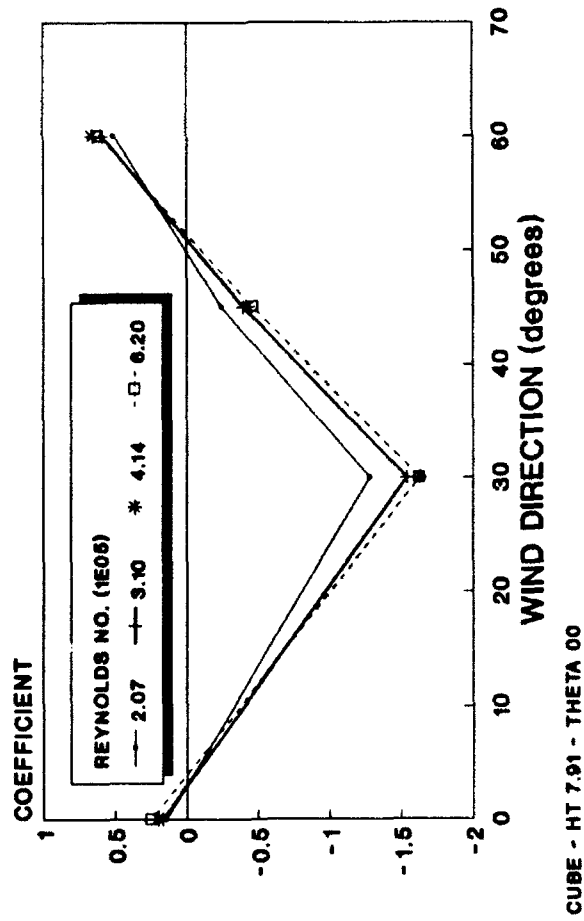
# MEAN FORCE COEFFICIENT NORMAL DIRECTION



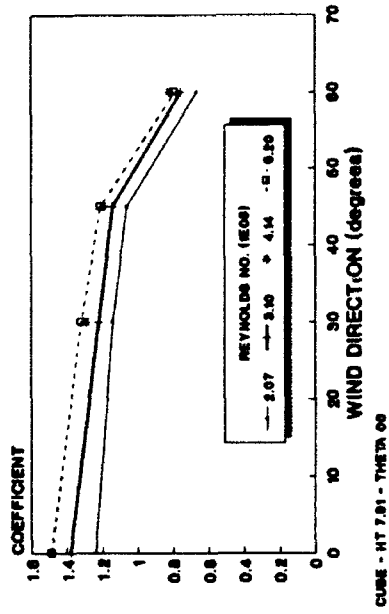
# MEAN FORCE COEFFICIENT LATERAL DIRECTION



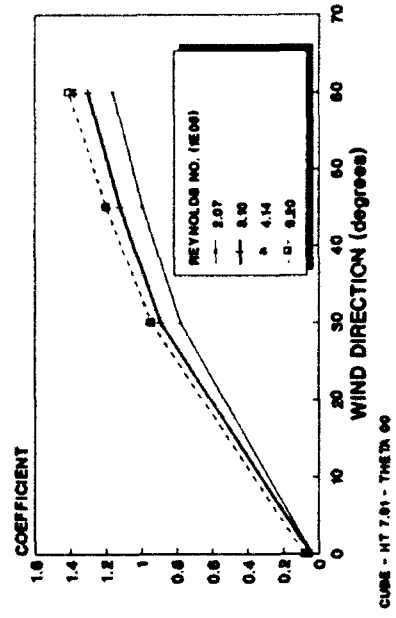
# MEAN MOMENT COEFFICIENT ROLL DIRECTION



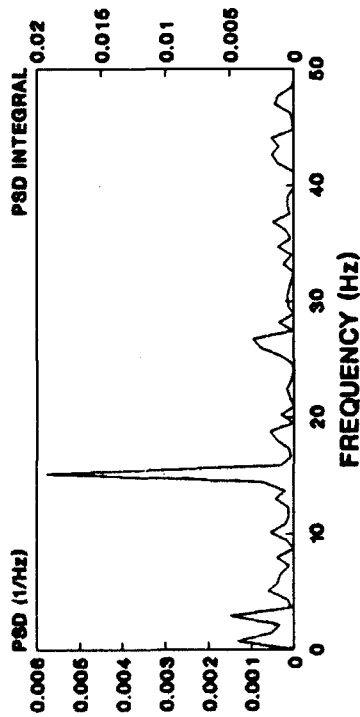
# MEAN MOMENT COEFFICIENT NORMAL DIRECTION



# MEAN MOMENT COEFFICIENT LATERAL DIRECTION

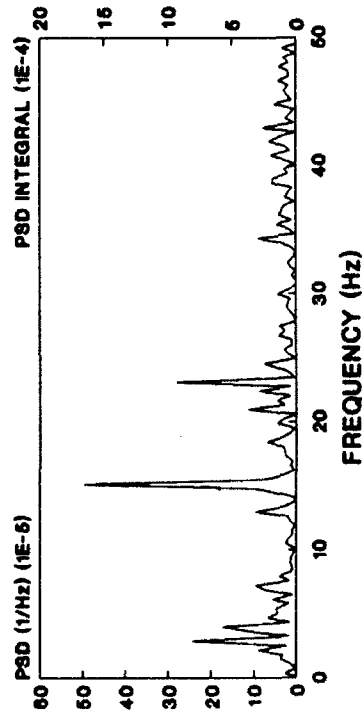


# FORCE COEFF - NORMAL 60 FT/SEC NOMINAL



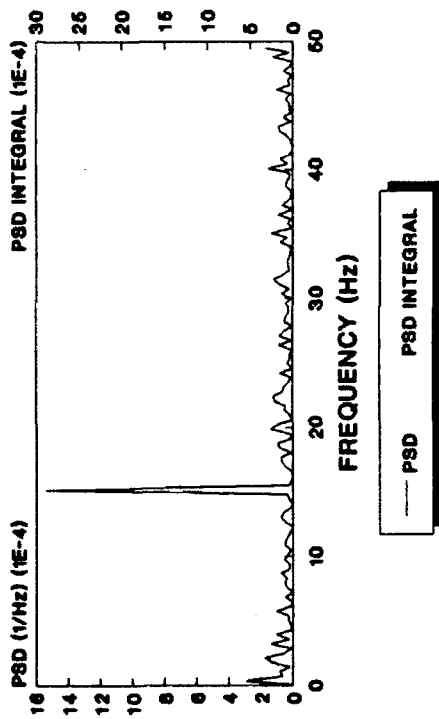
CUBE - HT 7.91 - THETA 00 - AZ 000

# FORCE COEFF - NORMAL 120 FT/SEC NOMINAL



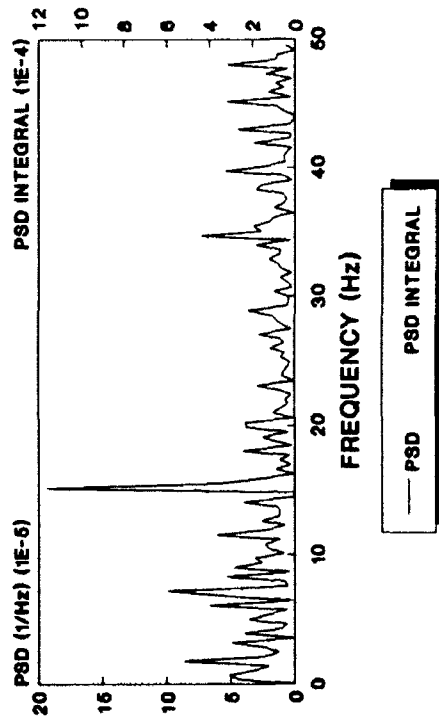
CUBE - HT 7.91 - THETA 00 - AZ 000

# FORCE COEFF - NORMAL 90 FT/SEC NOMINAL



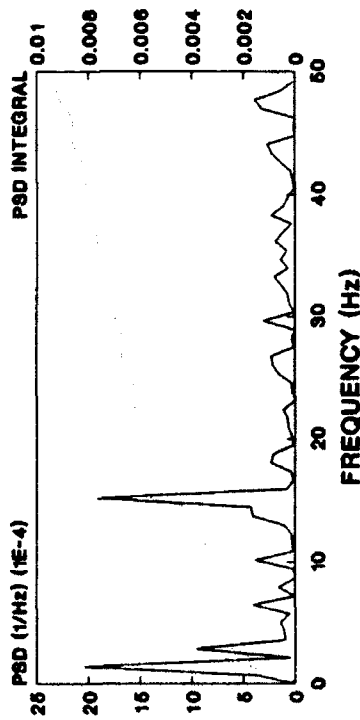
CUBE - HT 7.91 - THETA 00 - AZ 000

# FORCE COEFF - NORMAL 180 FT/SEC NOMINAL



CUBE - HT 7.91 - THETA 00 - AZ 000

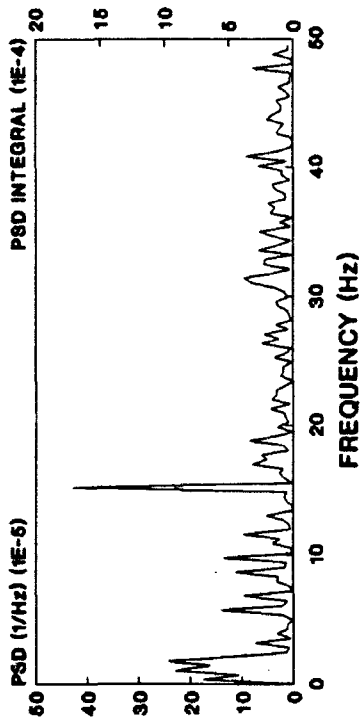
# MOMENT COEFF - NORMAL 60 FT/SEC NOMINAL



— PSD    - - - PSD INTEGRAL

CUBE - HT 7.91 - THETA 00 - AZ 000

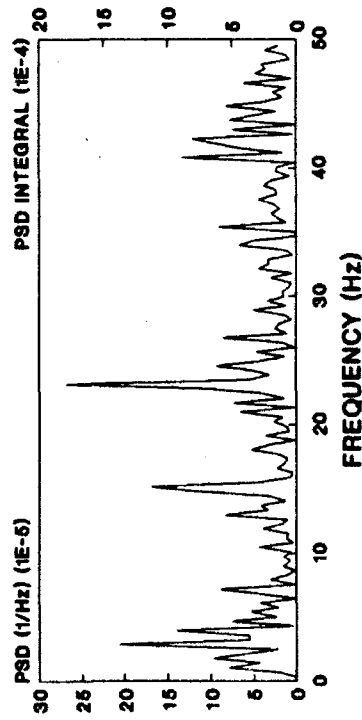
# MOMENT COEFF - NORMAL 90 FT/SEC NOMINAL



— PSD    - - - PSD INTEGRAL

CUBE - HT 7.91 - THETA 00 - AZ 000

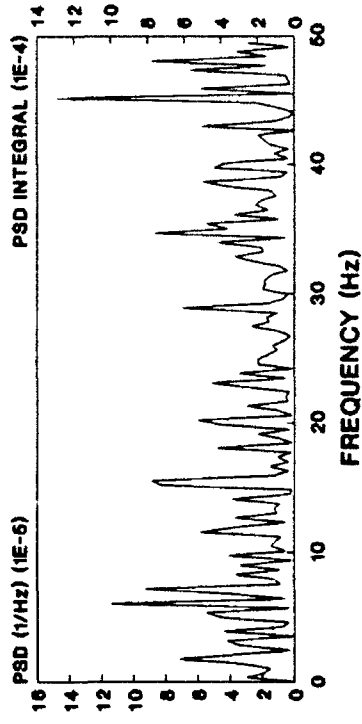
# MOMENT COEFF - NORMAL 120 FT/SEC NOMINAL



— PSD    - - - PSD INTEGRAL

CUBE - HT 7.91 - THETA 00 - AZ 000

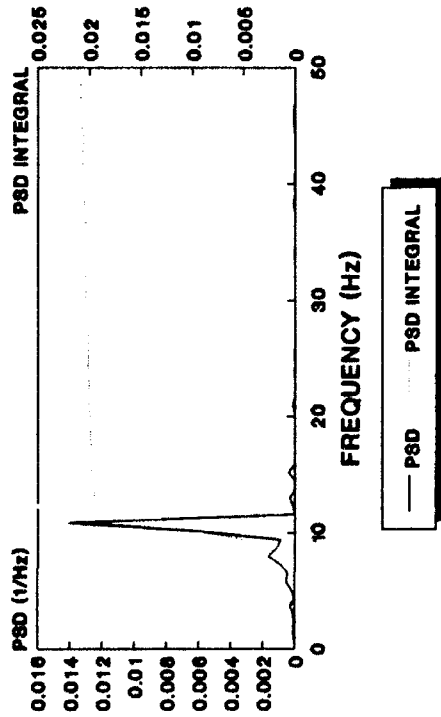
# MOMENT COEFF - NORMAL 180 FT/SEC NOMINAL



— PSD    - - - PSD INTEGRAL

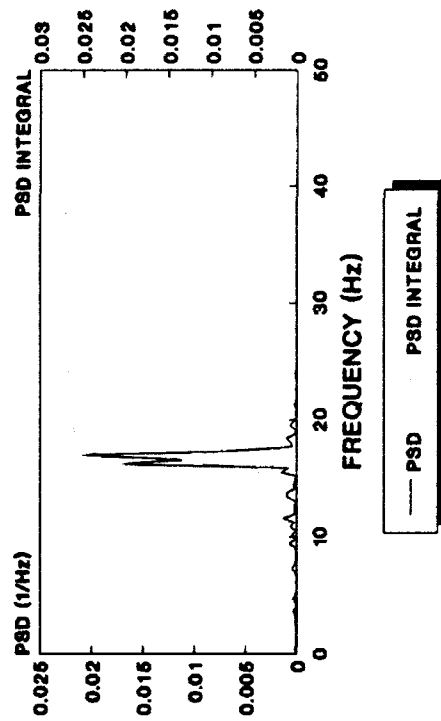
CUBE - HT 7.91 - THETA 00 - AZ 000

# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



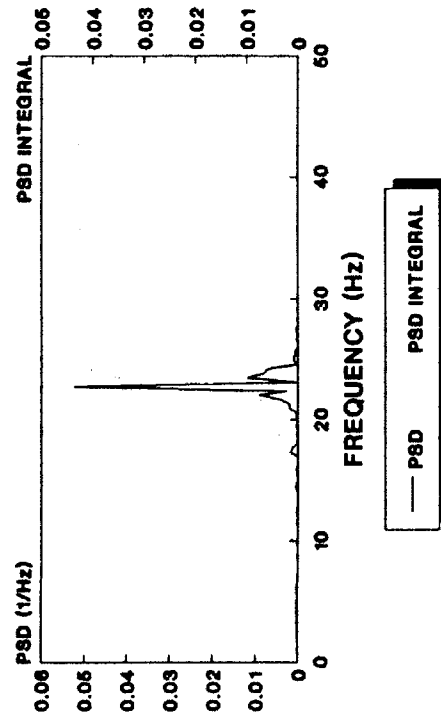
CUBE - HT 7.91 - THETA 00 - AZ 000

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



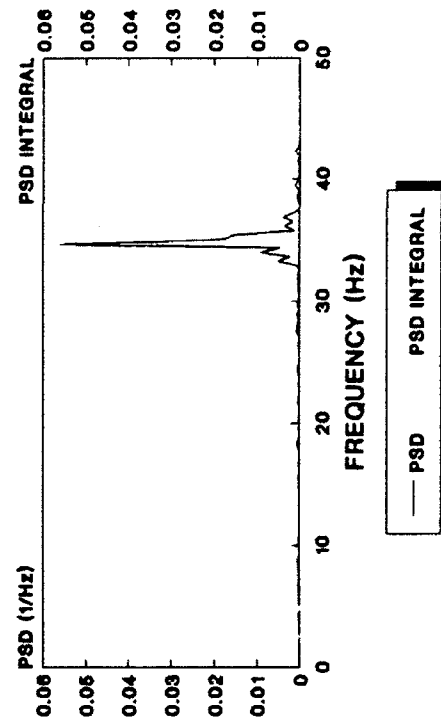
CUBE - HT 7.91 - THETA 00 - AZ 000

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



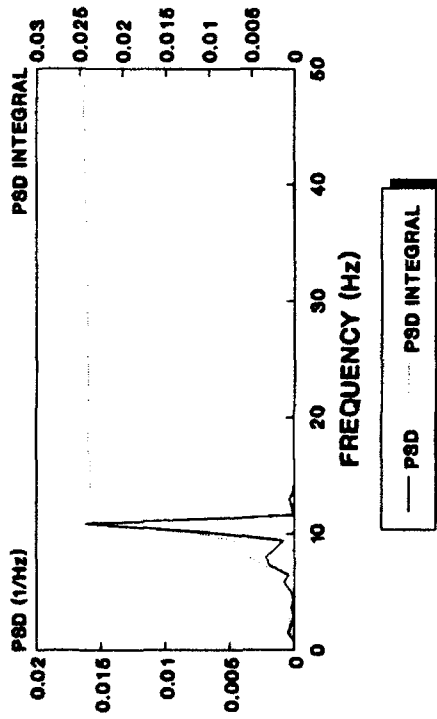
CUBE - HT 7.91 - THETA 00 - AZ 000

# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



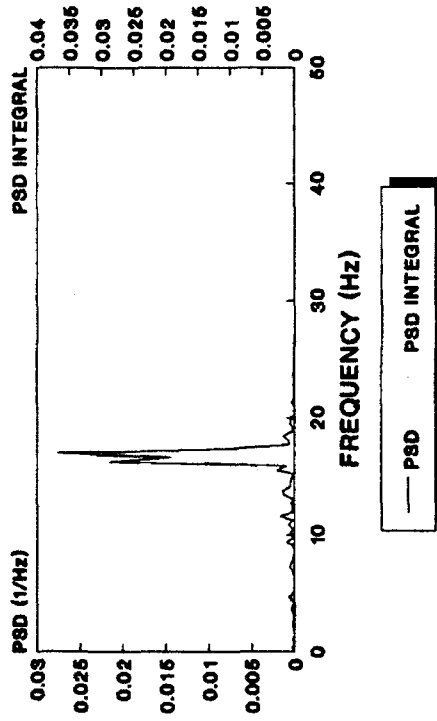
CUBE - HT 7.91 - THETA 00 - AZ 000

# MOMENT COEFF - LATERAL 60 FT/SEC NOMINAL



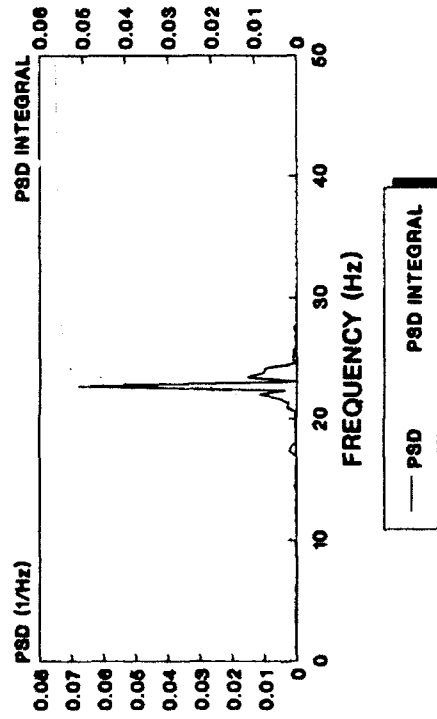
CUBE - HT 7.91 - THETA 00 - AZ 000

# MOMENT COEFF - LATERAL 90 FT/SEC NOMINAL



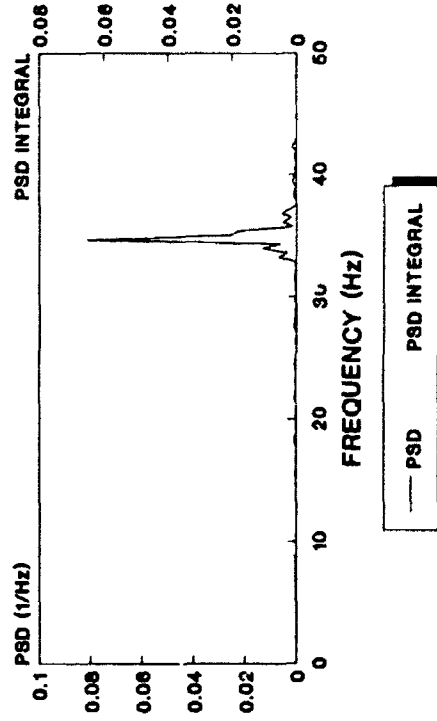
CUBE - HT 7.91 - THETA 00 - AZ 000

# MOMENT COEFF - LATERAL 120 FT/SEC NOMINAL



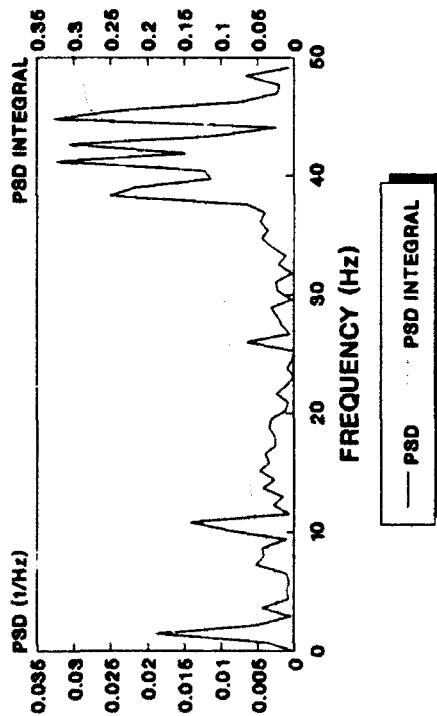
CUBE - HT 7.91 - THETA 00 - AZ 000

# MOMENT COEFF - LATERAL 180 FT/SEC NOMINAL



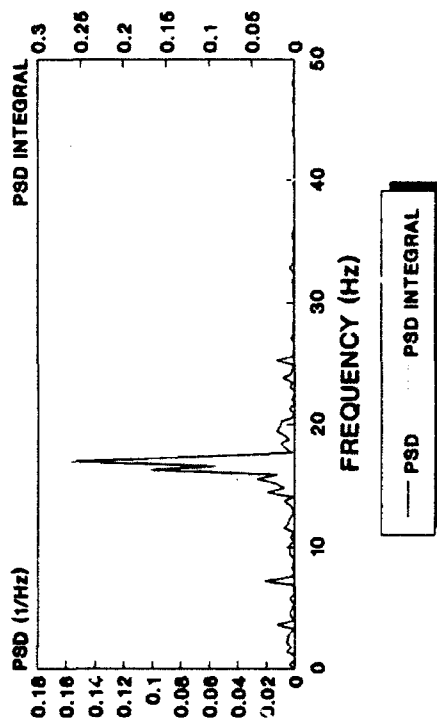
CUBE - HT 7.91 - THETA 00 - AZ 000

# MOMENT COEFF - ROLL 60 FT/SEC NOMINAL



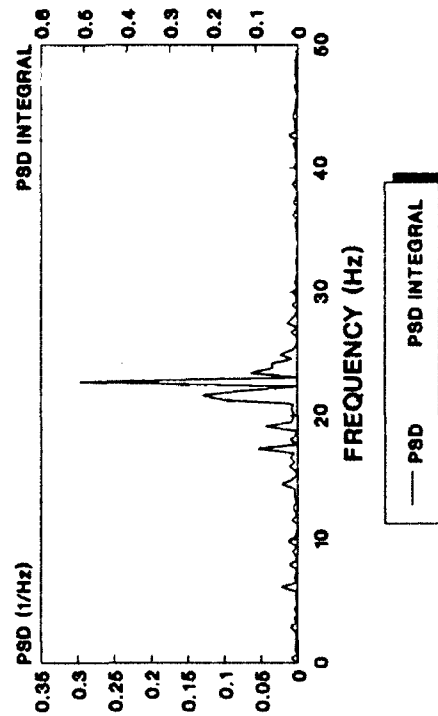
CUBE - HT 7.91 - THETA 00 - AZ 000

# MOMENT COEFF - ROLL 90 FT/SEC NOMINAL



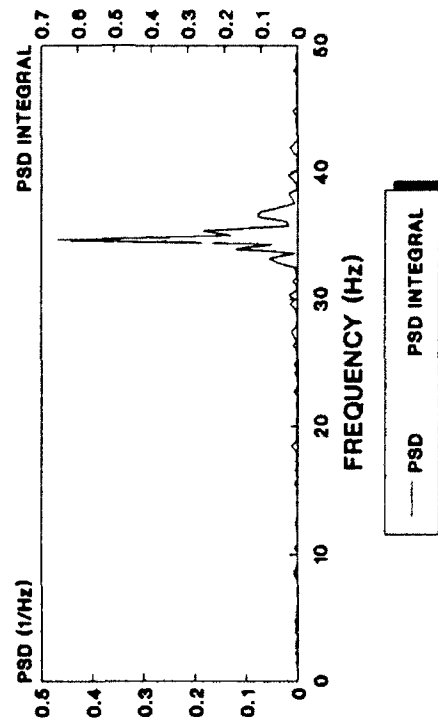
CUBE - HT 7.91 - THETA 00 - AZ 000

# MOMENT COEFF - ROLL 120 FT/SEC NOMINAL



CUBE - HT 7.91 - THETA 00 - AZ 000

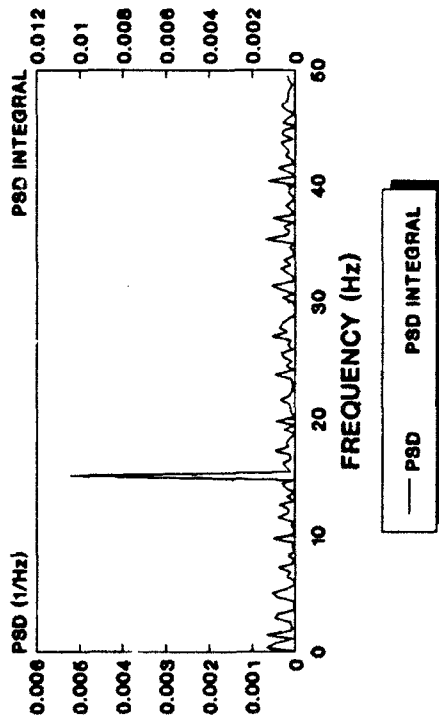
# MOMENT COEFF - ROLL 180 FT/SEC NOMINAL



CUBE - HT 7.91 - THETA 00 - AZ 000

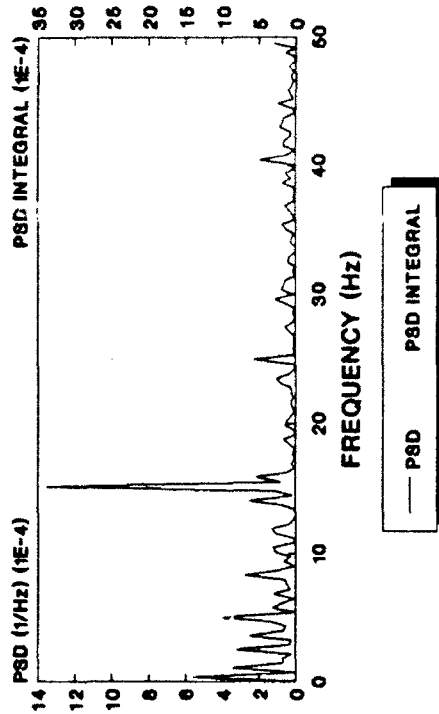


# FORCE COEFF - NORMAL 60 FT/SEC NOMINAL



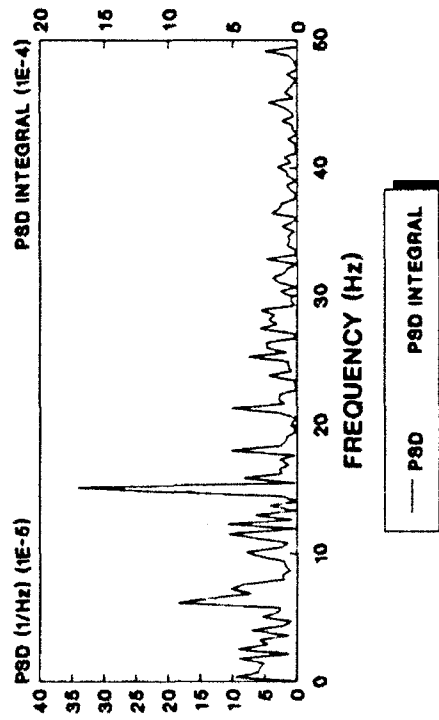
CUBE - HT 7.91 - THETA 00 - AZ 030

# FORCE COEFF - NORMAL 90 FT/SEC NOMINAL



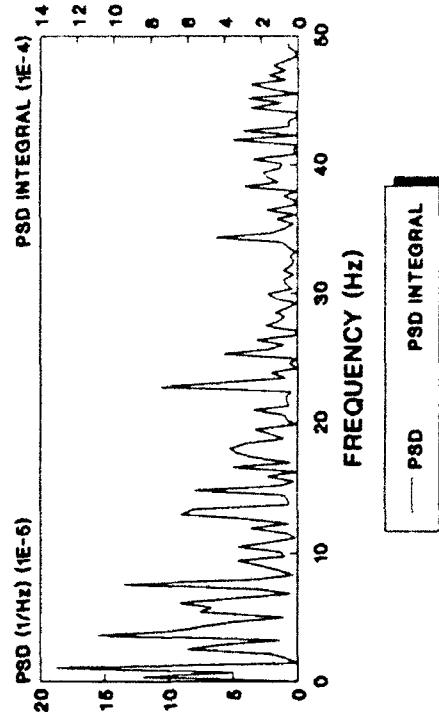
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# FORCE COEFF - NORMAL 120 FT/SEC NOMINAL



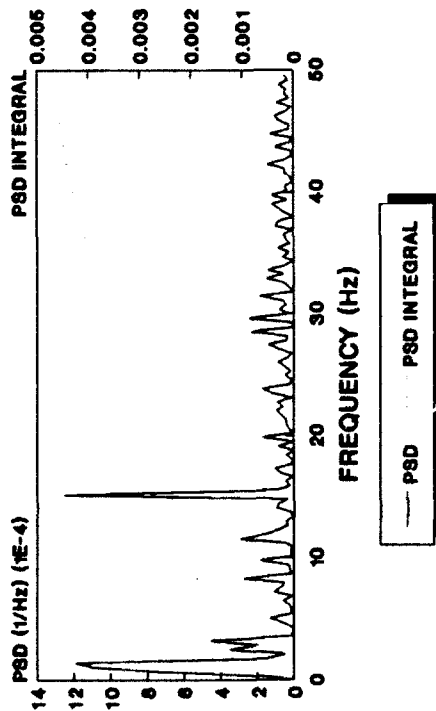
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# FORCE COEFF - NORMAL 180 FT/SEC NOMINAL



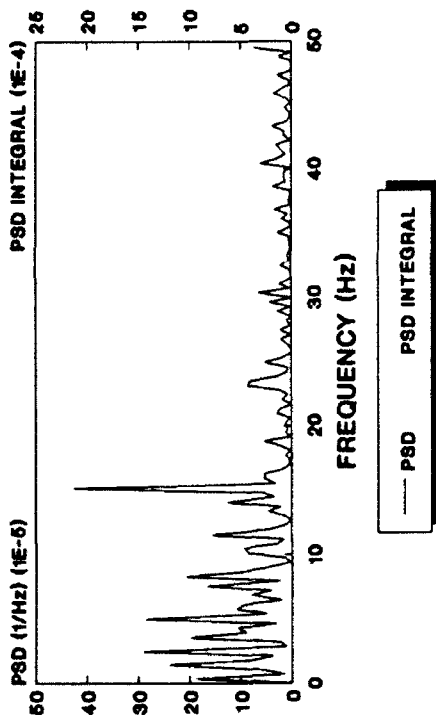
CUBE - HT 7.91 - THETA 00 - AZ 030

# MOMENT COEFF - NORMAL 60 FT/SEC NOMINAL



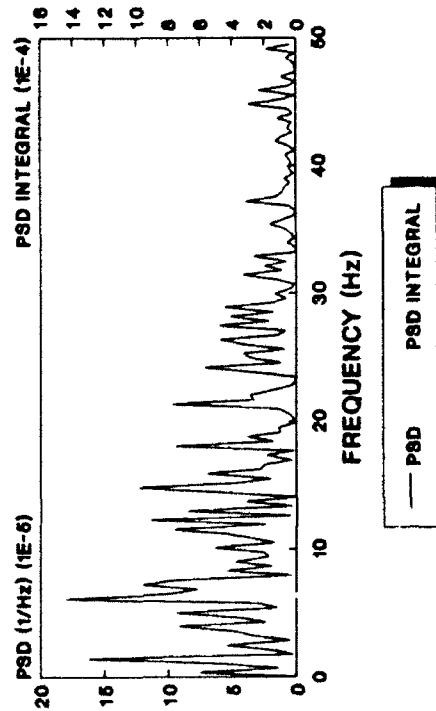
CUBE - HT 7.91 - THETA 00 - AZ 030

# MOMENT COEFF - NORMAL 90 FT/SEC NOMINAL



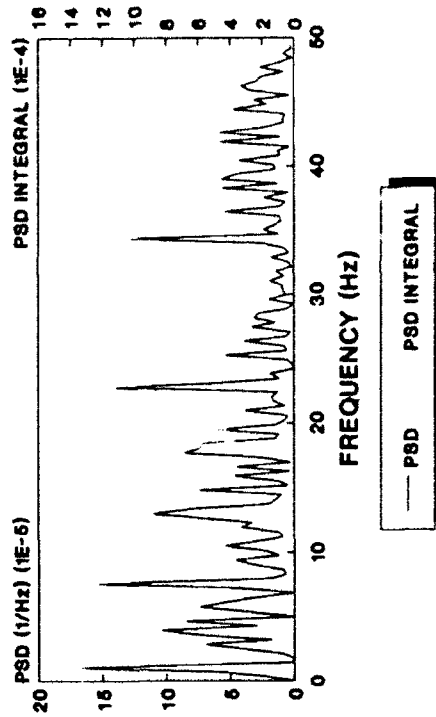
CUBE - HT 7.91 - THETA 00 - AZ 030

# MOMENT COEFF - NORMAL 120 FT/SEC NOMINAL



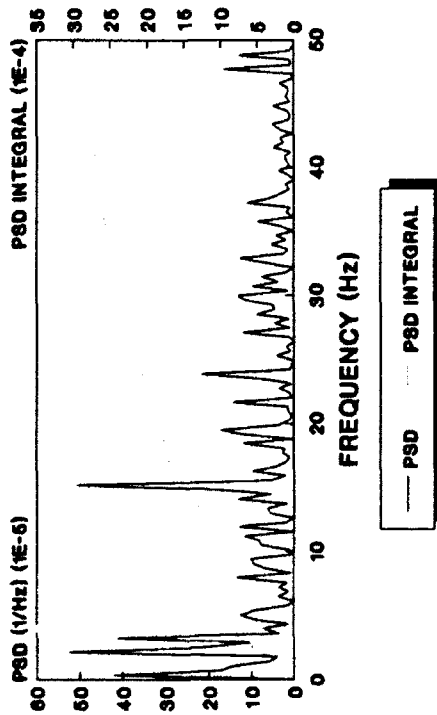
CUBE - HT 7.91 - THETA 00 - AZ 030

# MOMENT COEFF - NORMAL 180 FT/SEC NOMINAL



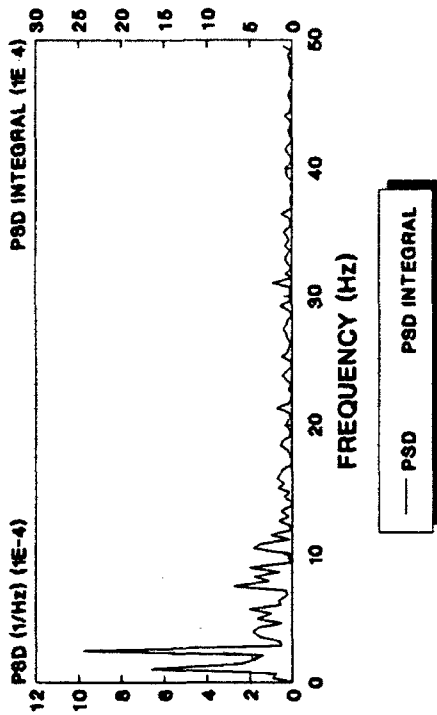
CUBE - HT 7.91 - THETA 00 - AZ 030

# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



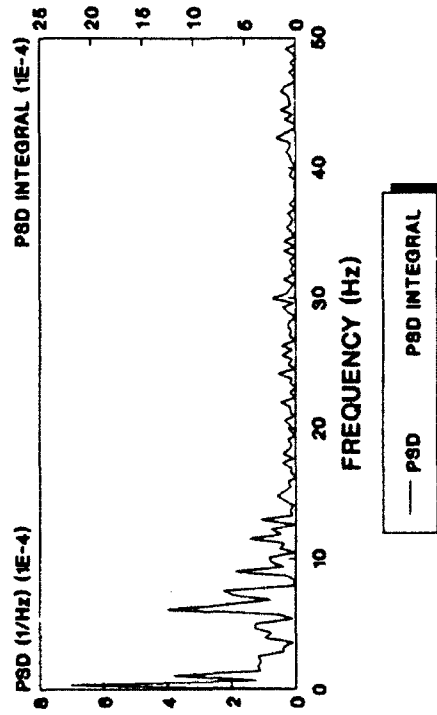
CUBE - MT 7.91 - THETA 00 - AZ 030

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



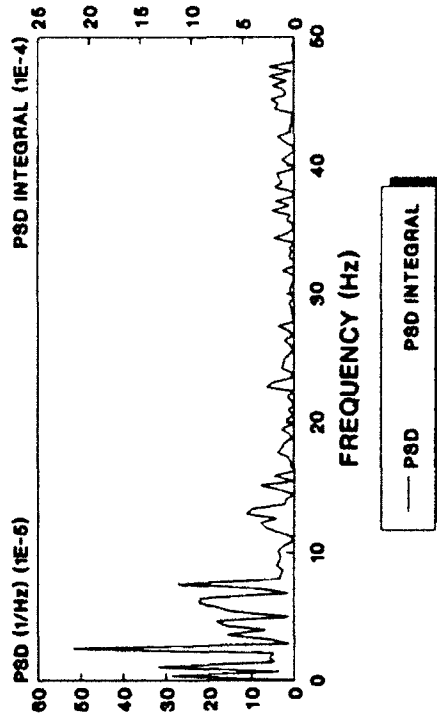
CUBE - MT 7.91 - THETA 00 - AZ 030

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



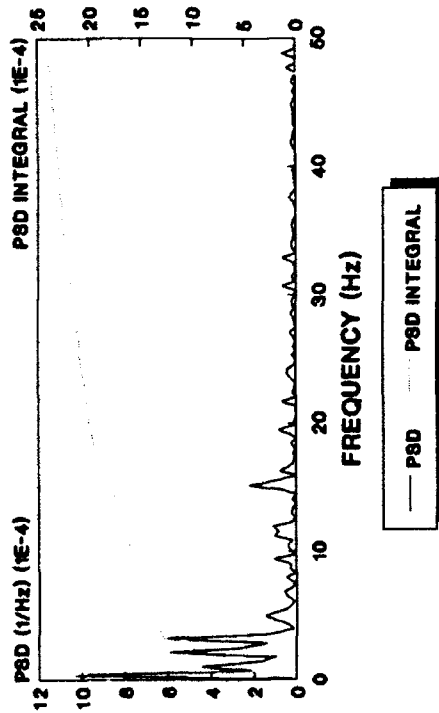
CUBE - MT 7.91 - THETA 00 - AZ 030

# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



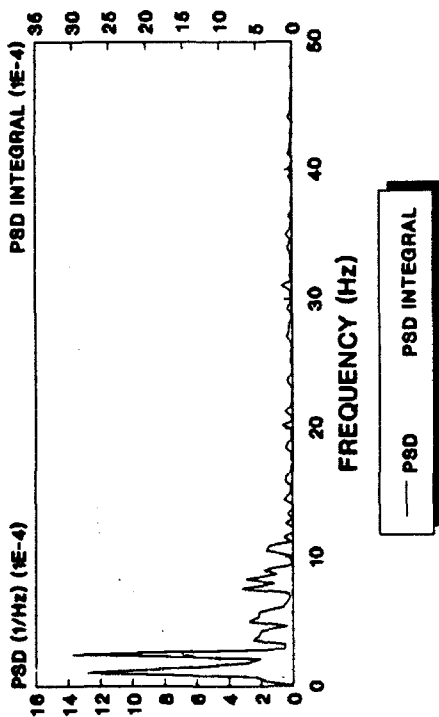
CUBE - MT 7.91 - THETA 00 - AZ 030

# MOMENT COEFF - LATERAL 60 FT/SEC NOMINAL



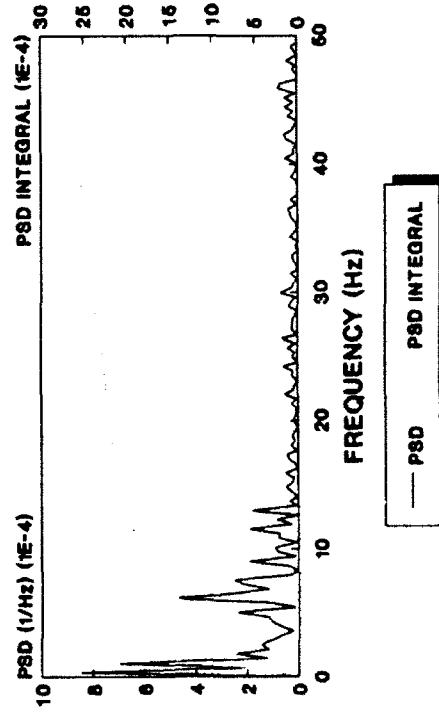
CUBE - HT 7.91 - THETA 00 - AZ 030

# MOMENT COEFF - LATERAL 90 FT/SEC NOMINAL



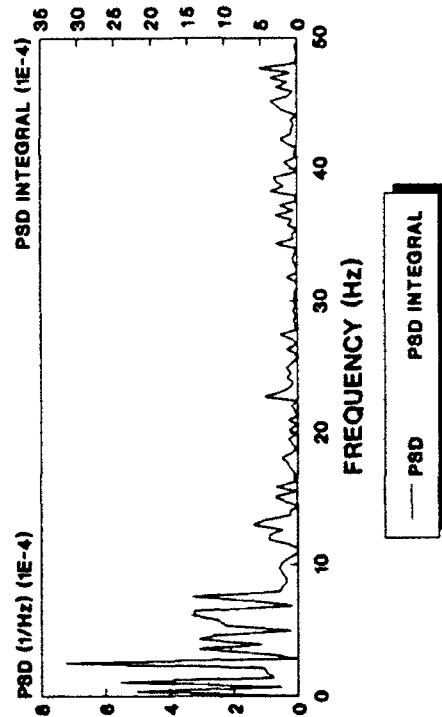
CUBE - HT 7.91 - THETA 00 - AZ 030

# MOMENT COEFF - LATERAL 120 FT/SEC NOMINAL



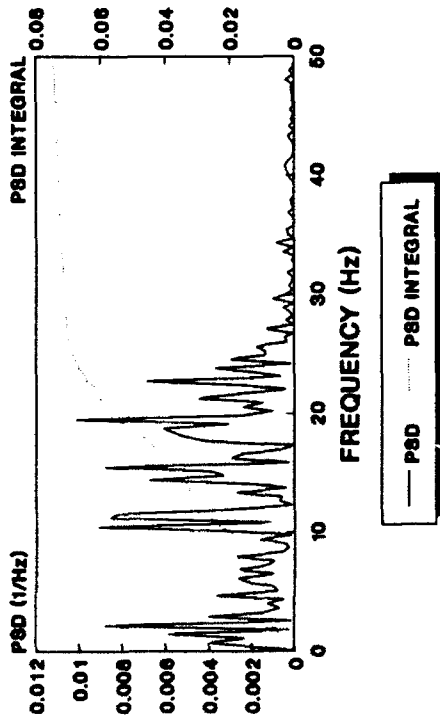
CUBE - HT 7.91 - THETA 00 - AZ 030

# MOMENT COEFF - LATERAL 180 FT/SEC NOMINAL



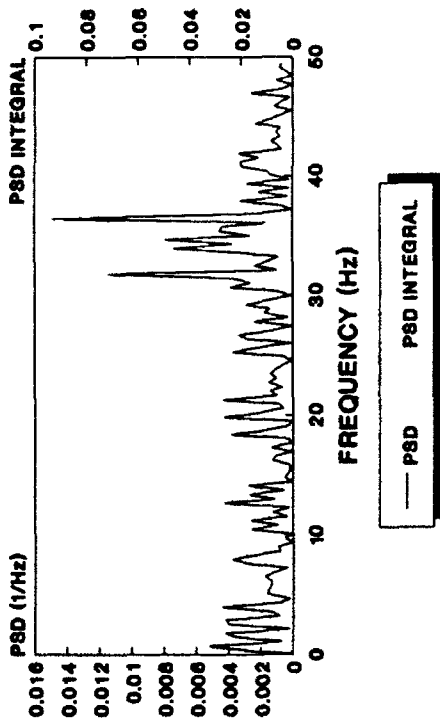
CUBE - HT 7.91 - THETA 00 - AZ 030

# MOMENT COEFF - ROLL 60 FT/SEC NOMINAL



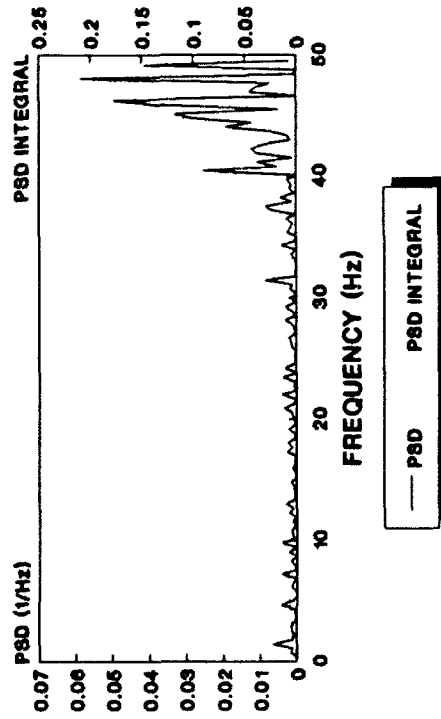
CUBE - HT 7.91 - THETA 00 - AZ 030

# MOMENT COEFF - ROLL 90 FT/SEC NOMINAL



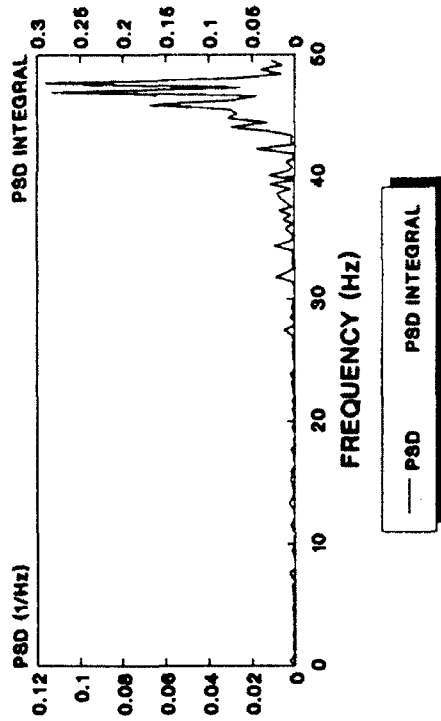
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# MOMENT COEFF - ROLL 120 FT/SEC NOMINAL



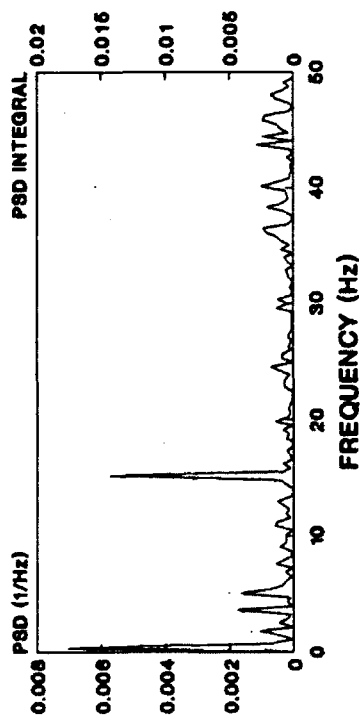
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# MOMENT COEFF - ROLL 180 FT/SEC NOMINAL



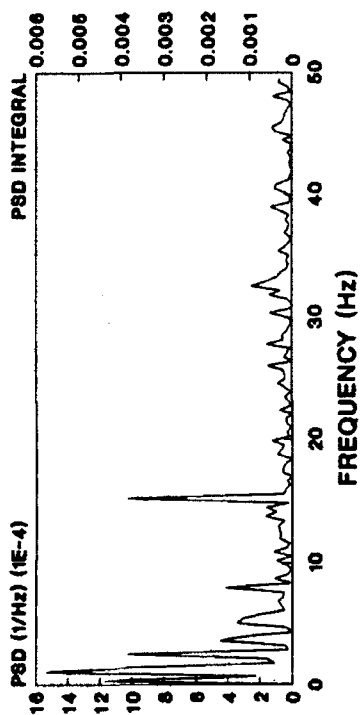
CUBE - HT 7.91 - THETA 00 - AZ 030

# FORCE COEFF - NORMAL 60 FT/SEC NOMINAL



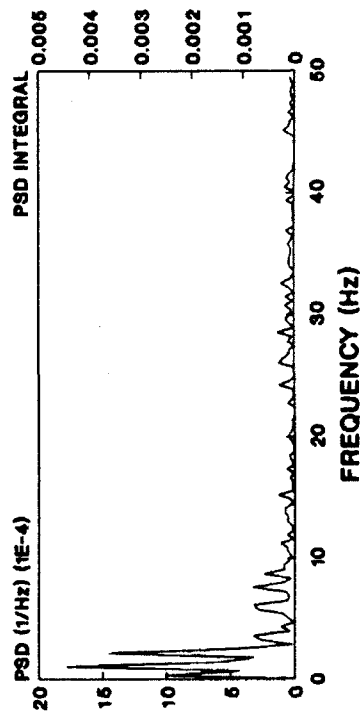
CUBE - HT 7.91 - THETA 00 - AZ 045

# FORCE COEFF - NORMAL 90 FT/SEC NOMINAL



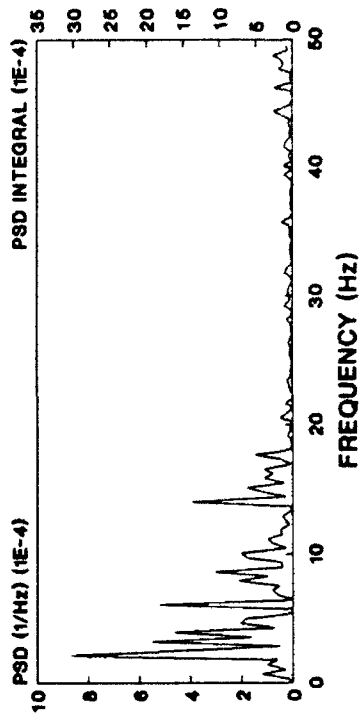
CUBE - HT 7.91 - THETA 00 - AZ 045

# FORCE COEFF - NORMAL 120 FT/SEC NOMINAL



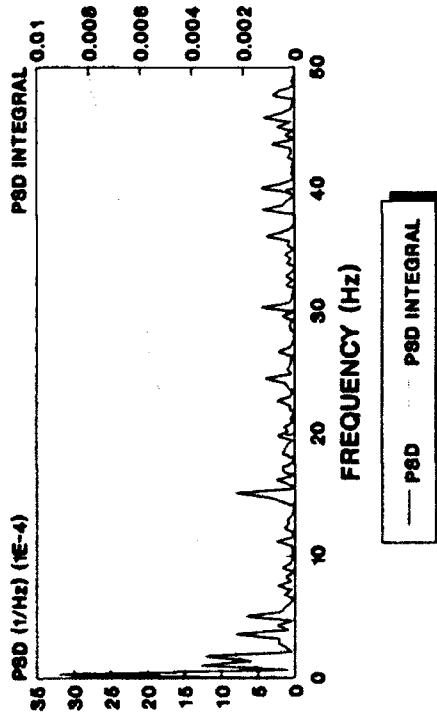
CUBE - HT 7.91 - THETA 00 - AZ 045

# FORCE COEFF - NORMAL 180 FT/SEC NOMINAL



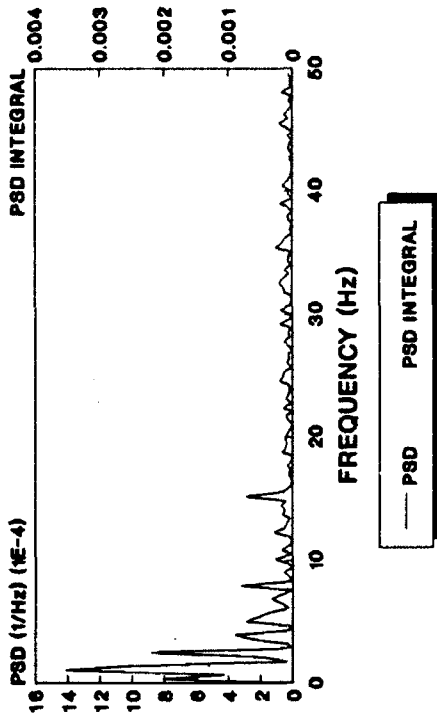
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# MOMENT COEFF - NORMAL 60 FT/SEC NOMINAL



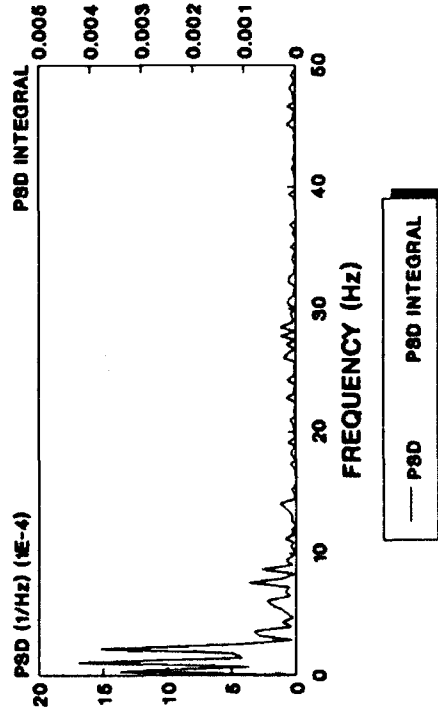
CUBE - HT 7.91 - THETA 00 - AZ 045

# MOMENT COEFF - NORMAL 90 FT/SEC NOMINAL



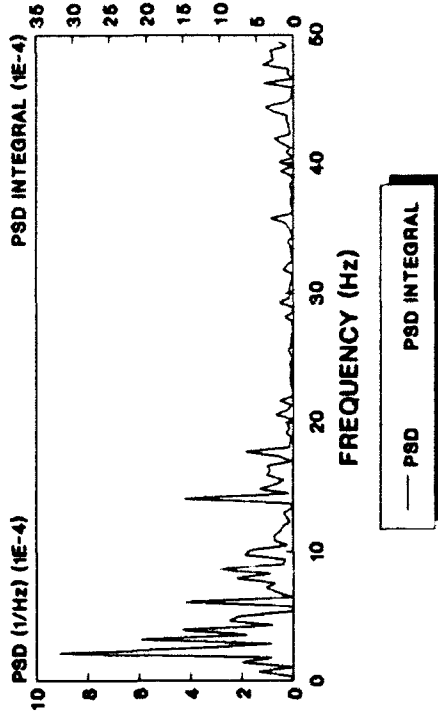
CUBE - HT 7.91 - THETA 00 - AZ 045

# MOMENT COEFF - NORMAL 120 FT/SEC NOMINAL



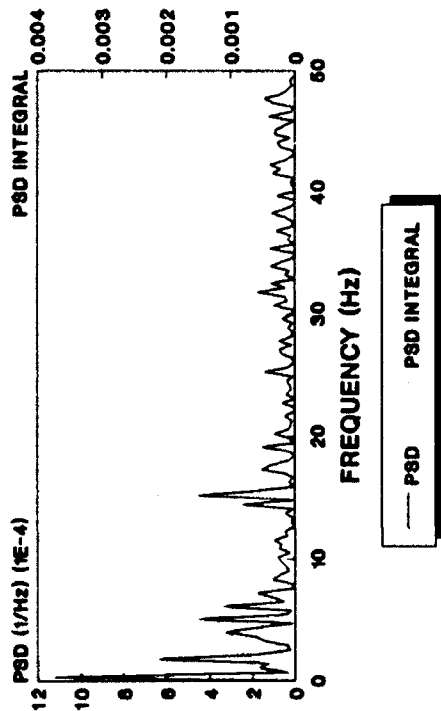
CUBE - HT 7.91 - THETA 00 - AZ 045

# MOMENT COEFF - NORMAL 180 FT/SEC NOMINAL



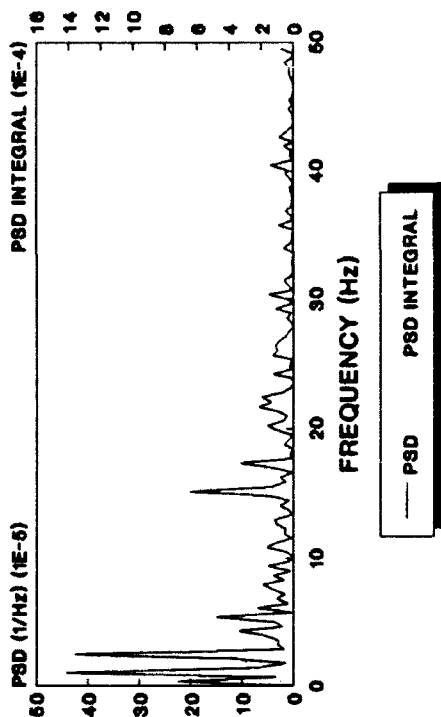
CUBE - HT 7.91 - THETA 00 - AZ 045

# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



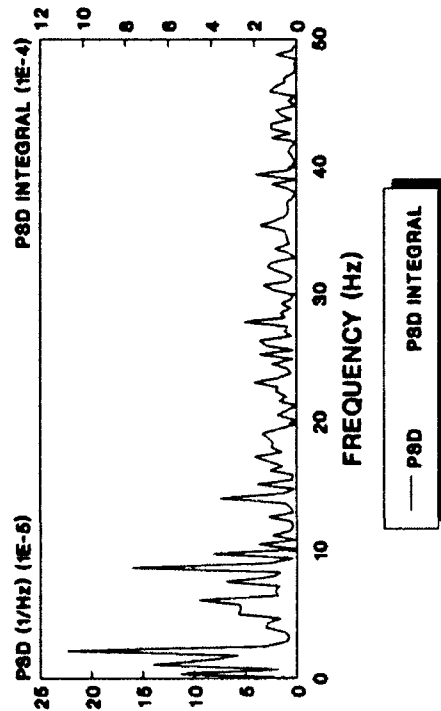
CUBE - HT 7.91 - THETA 00 - AZ 046

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



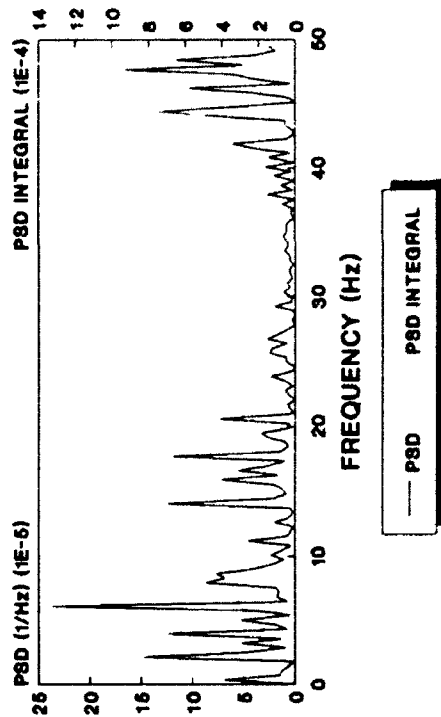
CUBE - HT 7.91 - THETA 00 - AZ 046

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



CUBE - HT 7.91 - THETA 00 - AZ 046

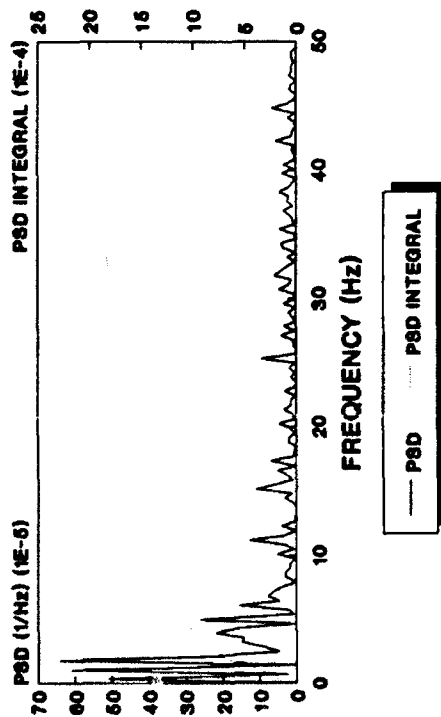
# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



CUBE - HT 7.91 - THETA 00 - AZ 046

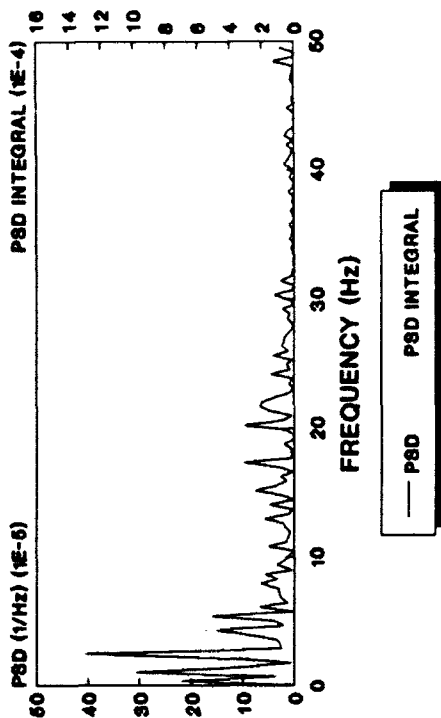


# MOMENT COEFF - LATERAL 60 FT/SEC NOMINAL



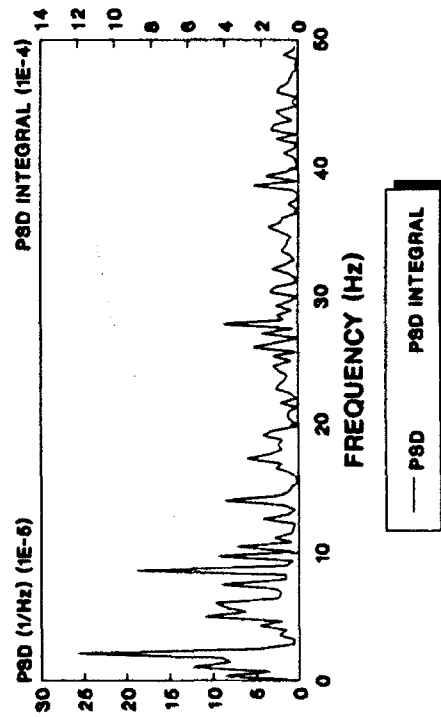
CUBE - HT 7.91 - THETA 00 - AZ 046

# MOMENT COEFF - LATERAL 90 FT/SEC NOMINAL



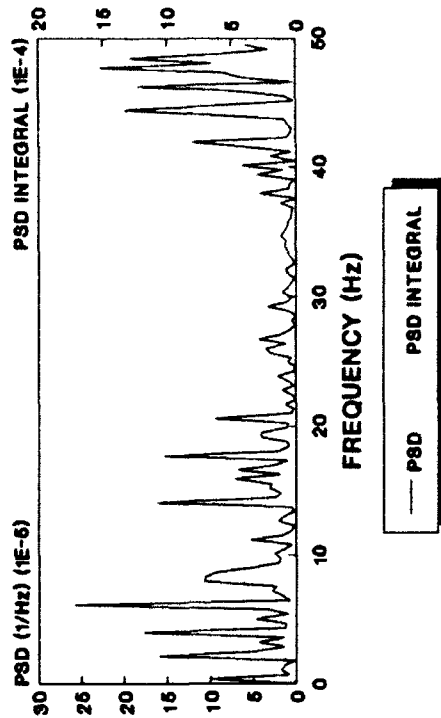
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# MOMENT COEFF - LATERAL 120 FT/SEC NOMINAL



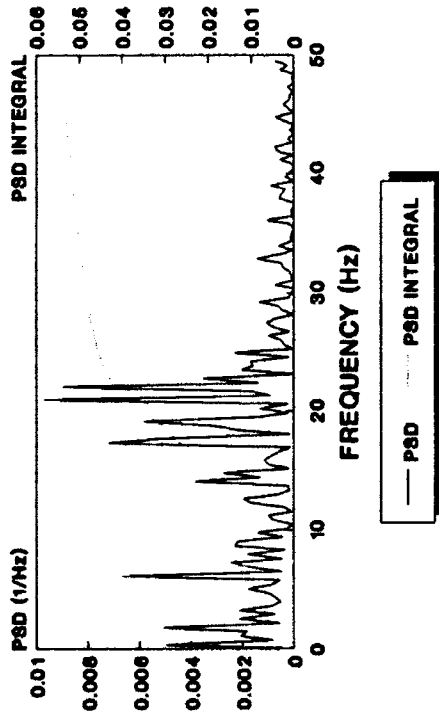
CUBE - HT 7.91 - THETA 00 - AZ 046

# MOMENT COEFF - LATERAL 180 FT/SEC NOMINAL



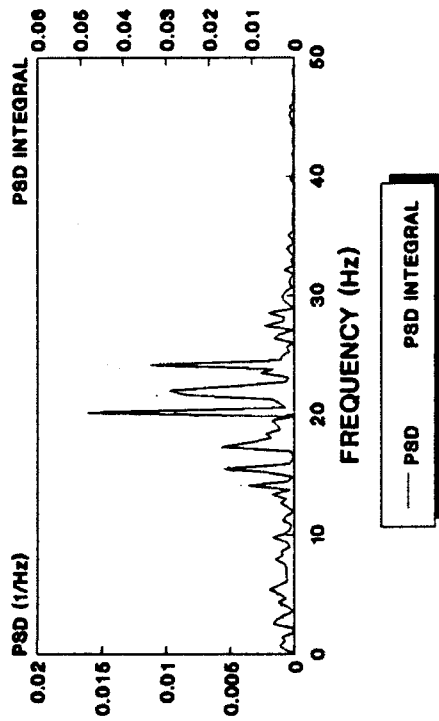
CUBE - HT 7.91 - THETA 00 - AZ 046

# MOMENT COEFF - ROLL 60 FT/SEC NOMINAL



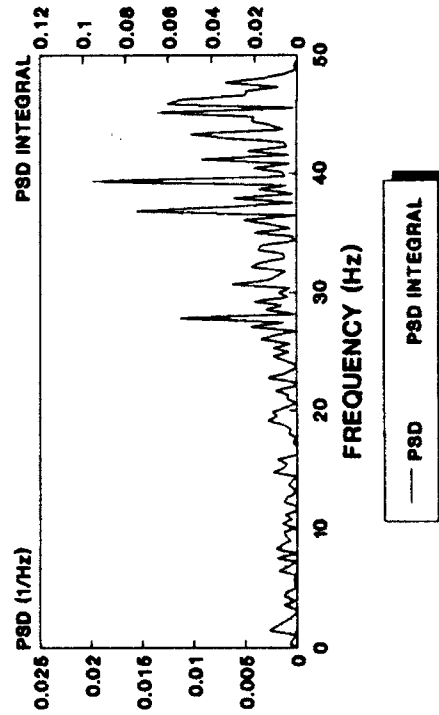
CUBE - HT 7.91 - THETA 00 - AZ 045

# MOMENT COEFF - ROLL 90 FT/SEC NOMINAL



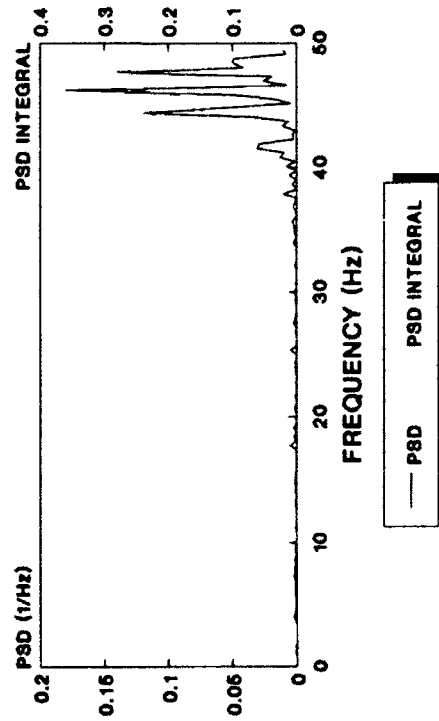
CUBE - HT 7.91 - THETA 00 - AZ 045

# MOMENT COEFF - ROLL 120 FT/SEC NOMINAL



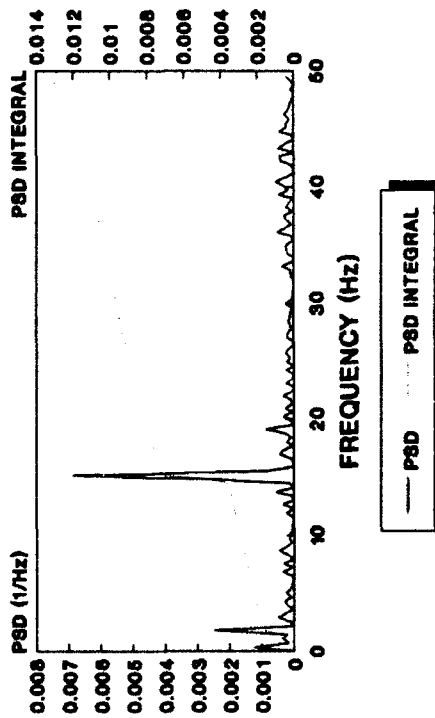
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# MOMENT COEFF - ROLL 180 FT/SEC NOMINAL



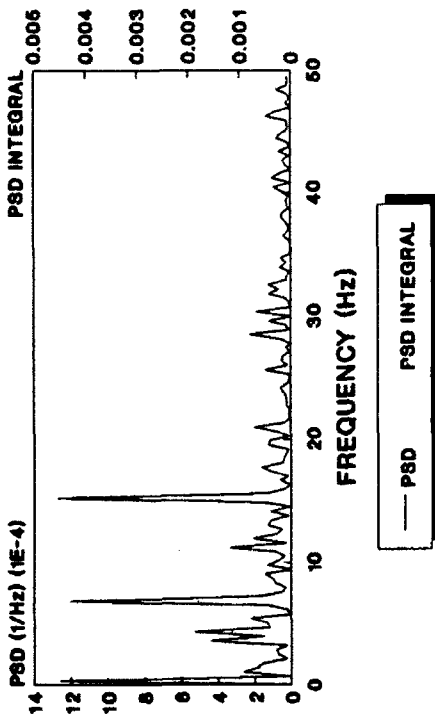
CUBE - HT 7.91 - THETA 00 - AZ 045

# FORCE COEFF - NORMAL 60 FT/SEC NOMINAL



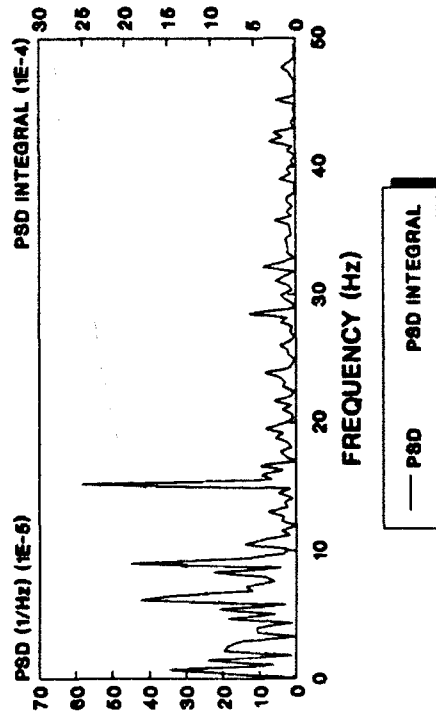
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# FORCE COEFF - NORMAL 90 FT/SEC NOMINAL



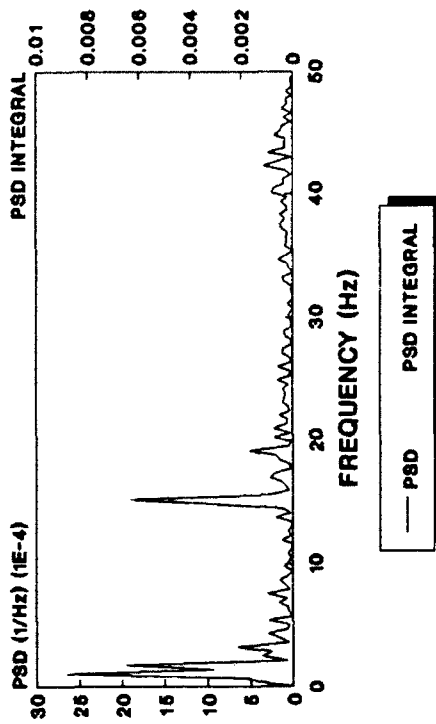
CUBE - HT 7.91 - THETA 00 - AZ 060

# FORCE COEFF - NORMAL 120 FT/SEC NOMINAL



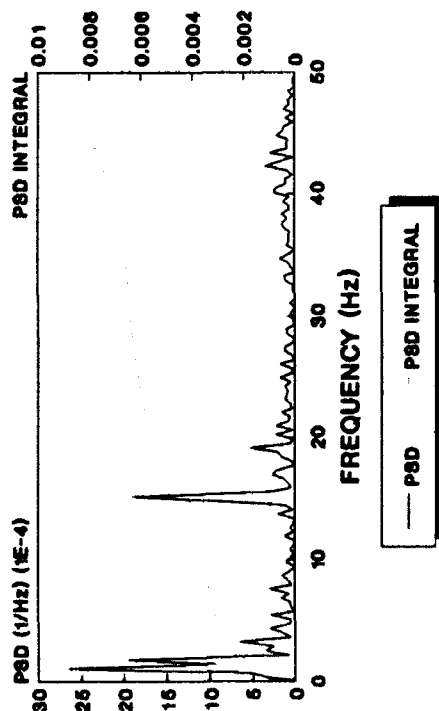
CUBE - HT 7.91 - THETA 00 - AZ 060

# MOMENT COEFF - NORMAL 60 FT/SEC NOMINAL



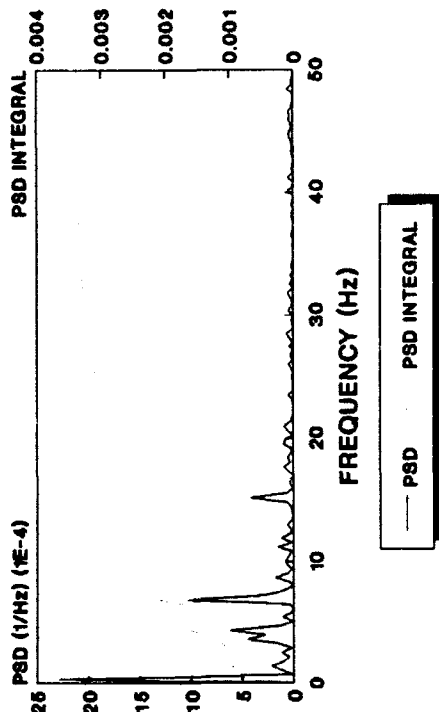
CUBE - HT 7.91 - THETA 00 - AZ 060

# MOMENT COEFF - NORMAL 60 FT/SEC NOMINAL



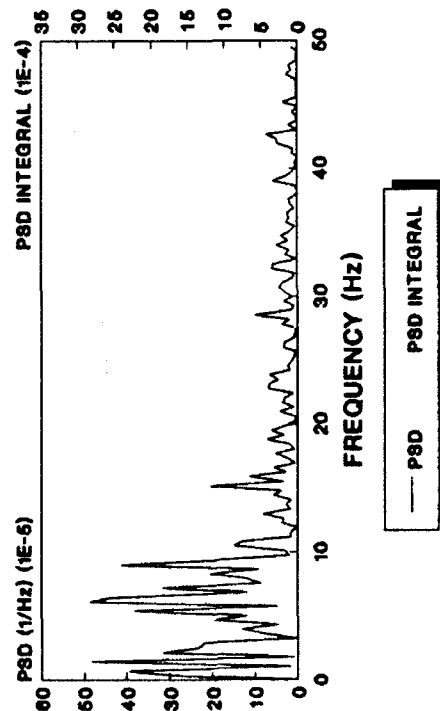
CUBE - HT 7.91 - THETA 00 - AZ 060

# MOMENT COEFF - NORMAL 90 FT/SEC NOMINAL



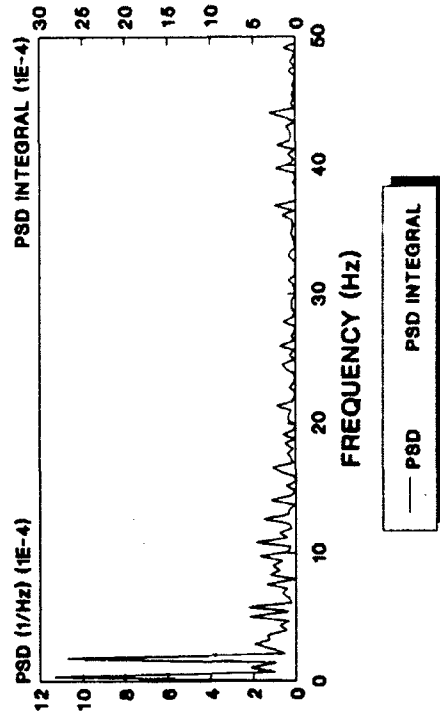
CUBE - HT 7.91 - THETA 00 - AZ 060

# MOMENT COEFF - NORMAL 120 FT/SEC NOMINAL



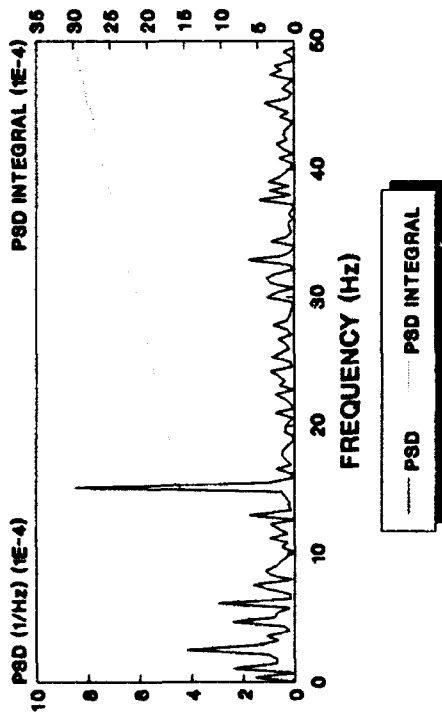
CUBE - HT 7.91 - THETA 00 - AZ 060

# MOMENT COEFF - NORMAL 180 FT/SEC NOMINAL



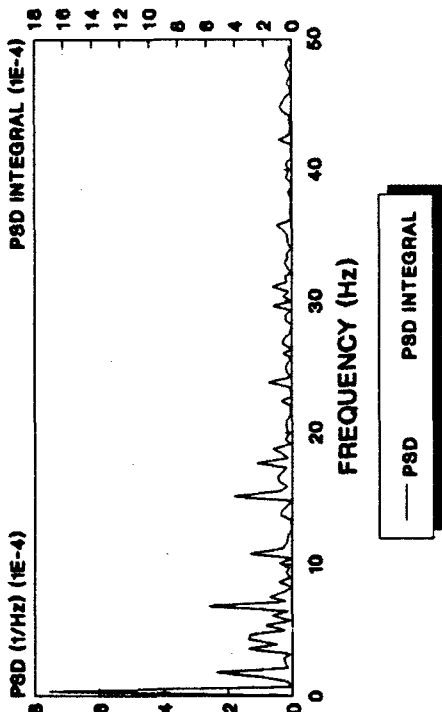
CUBE - HT 7.91 - THETA 00 - AZ 060

# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



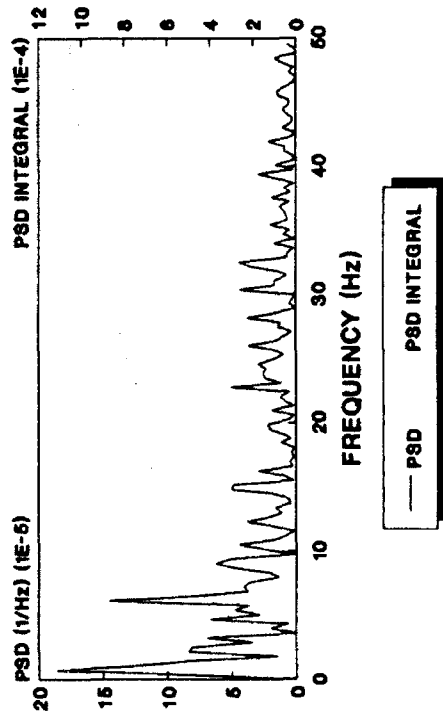
CUBE - HT 7.91 - THETA 00 - AZ 060

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



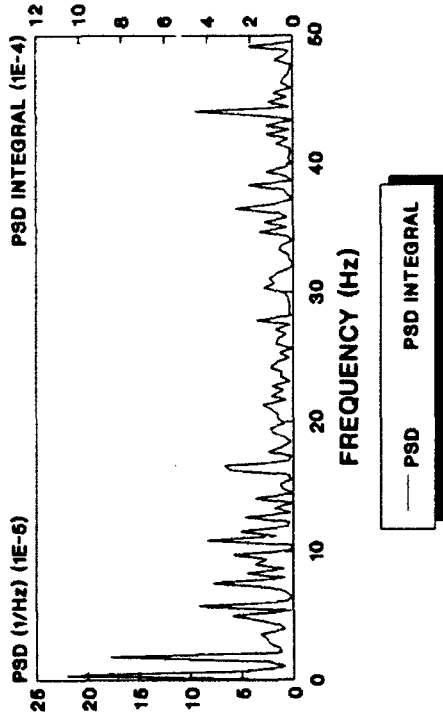
CUBE - HT 7.91 - THETA 00 - AZ 060

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



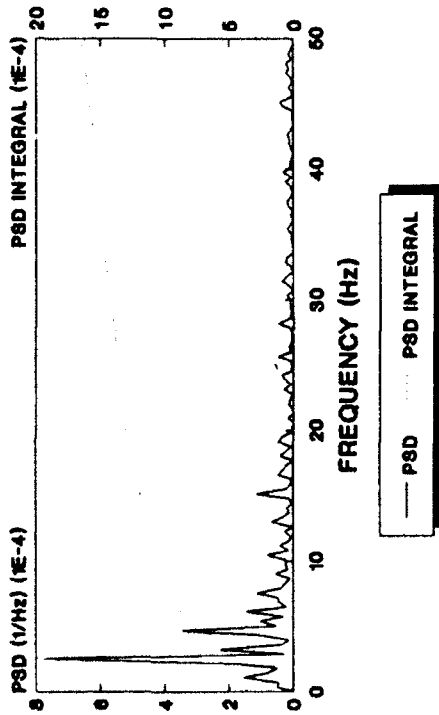
CUBE - HT 7.91 - THETA 00 - AZ 060

# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



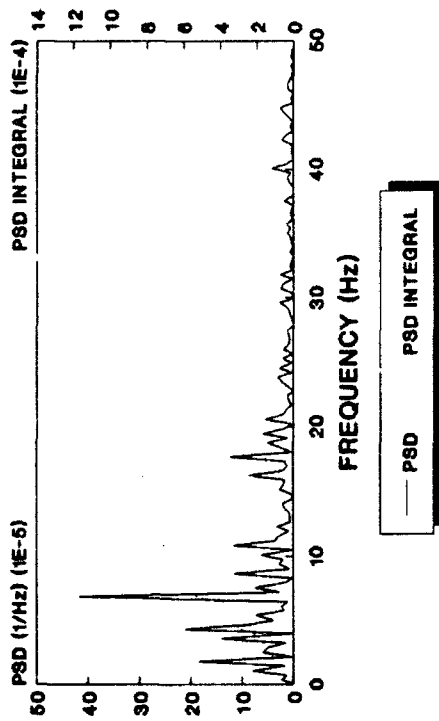
CUBE - HT 7.91 - THETA 00 - AZ 060

# MOMENT COEFF - LATERAL 60 FT/SEC NOMINAL



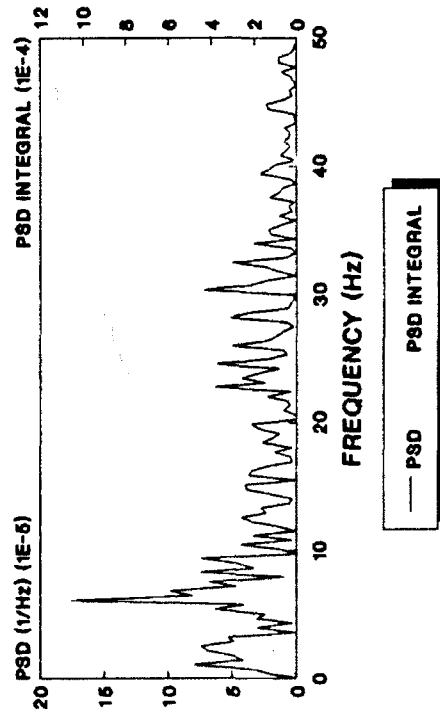
CUBE - HT 7.91 - THETA 00 - AZ 060

# MOMENT COEFF - LATERAL 90 FT/SEC NOMINAL



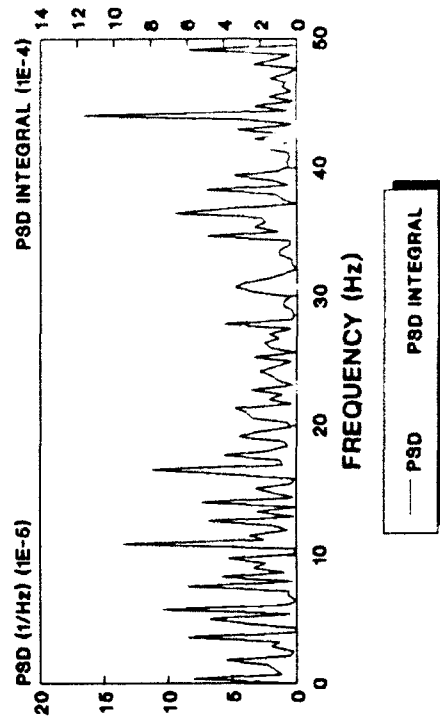
CUBE - HT 7.91 - THETA 00 - AZ 060

# MOMENT COEFF - LATERAL 120 FT/SEC NOMINAL



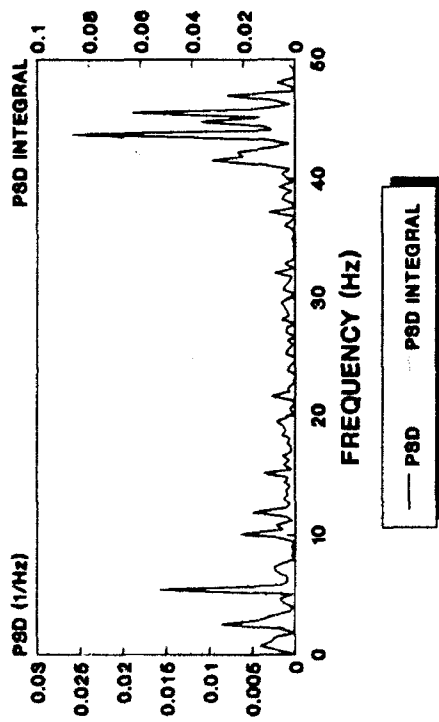
CUBE - HT 7.91 - THETA 00 - AZ 060

# MOMENT COEFF - LATERAL 180 FT/SEC NOMINAL



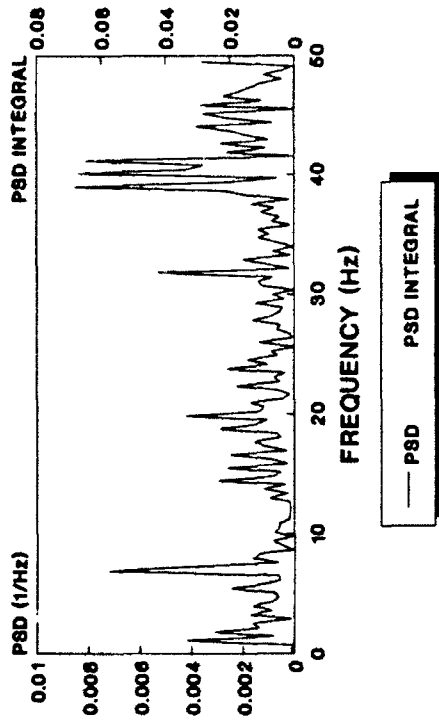
CUBE - HT 7.91 - THETA 00 - AZ 060

# MOMENT COEFF - ROLL 60 FT/SEC NOMINAL



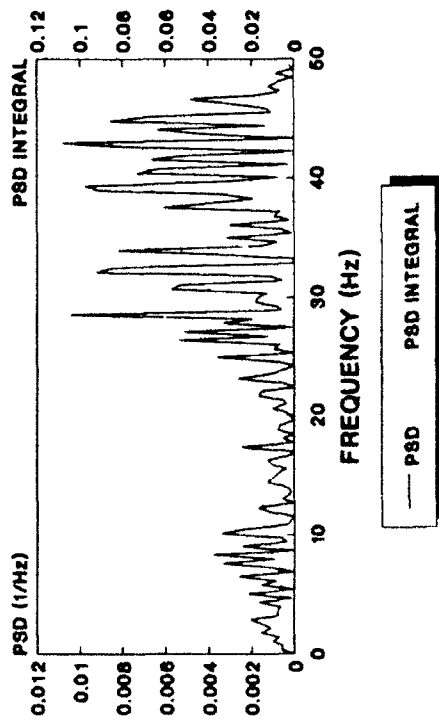
CUBE - HT 7.91 - THETA 00 - AZ 090

# MOMENT COEFF - ROLL 90 FT/SEC NOMINAL



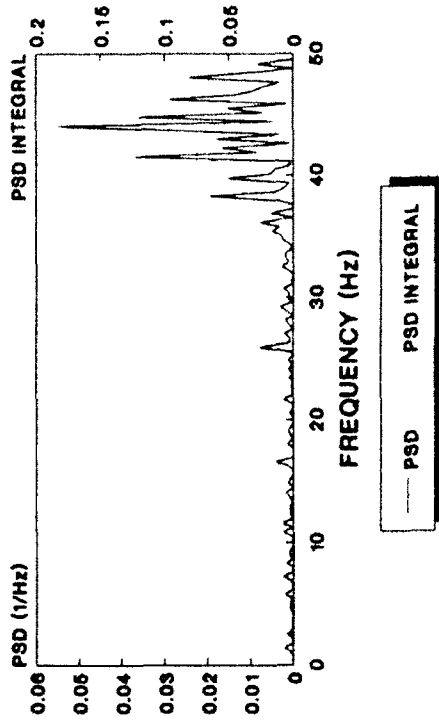
CUBE - HT 7.91 - THETA 00 - AZ 090

# MOMENT COEFF - ROLL 120 FT/SEC NOMINAL



CUBE - HT 7.91 - THETA 00 - AZ 090

# MOMENT COEFF - ROLL 180 FT/SEC NOMINAL



CUBE - HT 7.91 - THETA 00 - AZ 090

## DATA REPORT

SHAPE:	CUBE
DECLINATION [THETA (degrees)]:	0
DIMENSIONS [LxWxH (in)]:	7.62 x 7.88 x 9.56
WEIGHT (gm):	1009.5
TORSION FREQUENCY (Hz):	30
LATERAL (SIDE BEND) FREQUENCY (Hz):	43
NORMAL (AFT BEND) FREQUENCY (Hz):	46
AZIMUTHS (degrees):	0, 30, 45

### GRAPH CORRECTIONS:

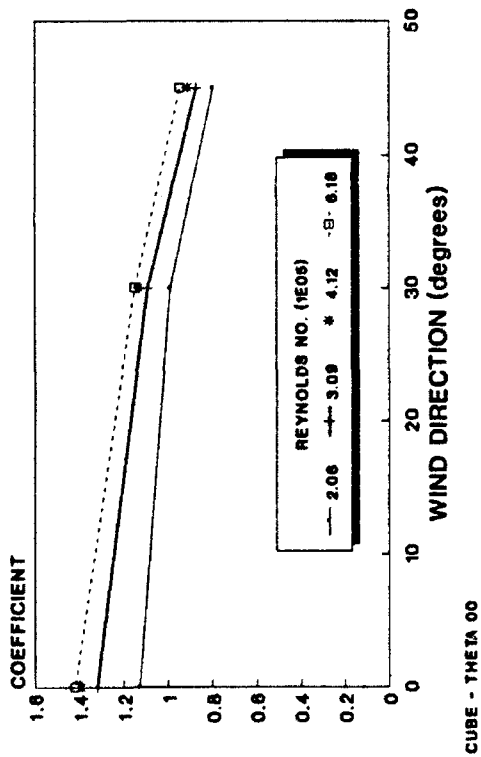
- The mean value of the **ROLL** moment coefficients should be divided by 12.
- The PSD and PSD Integral values of the **ROLL** moment coefficients should be divided by 144.

### OBSERVATIONS:

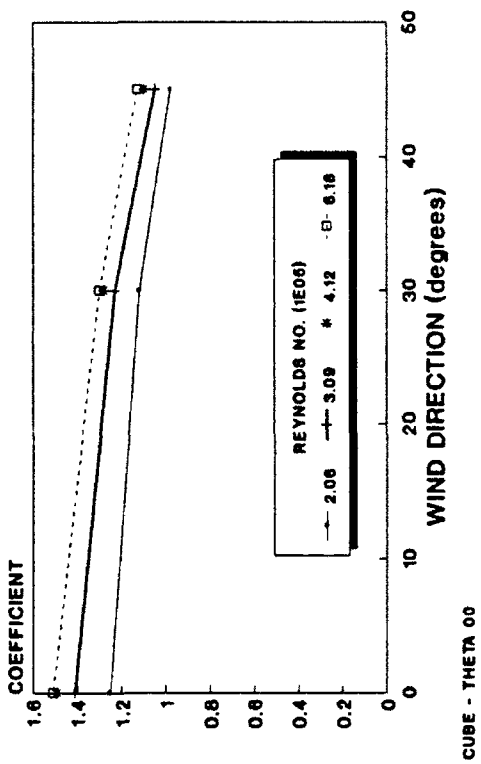
- Very good shedding is seen in the lateral data at 0 degrees azimuth. This shedding is nearly single frequency in nature.
- 15.176 Hz spike occasionally observed in the data.



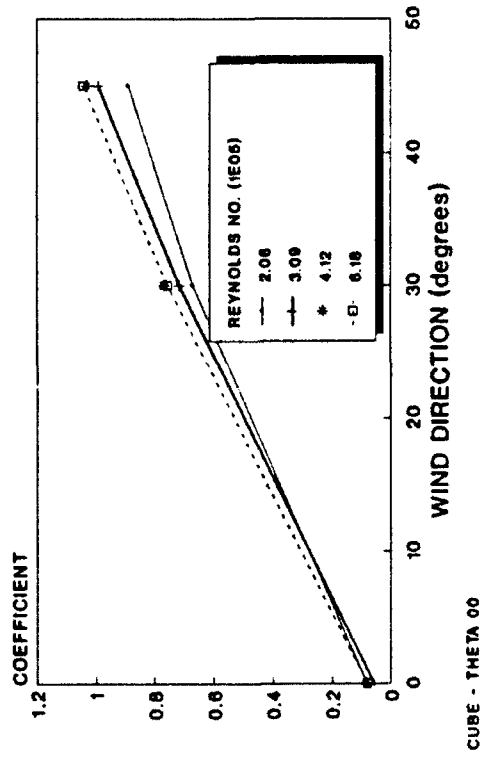
# MEAN FORCE COEFFICIENT NORMAL DIRECTION



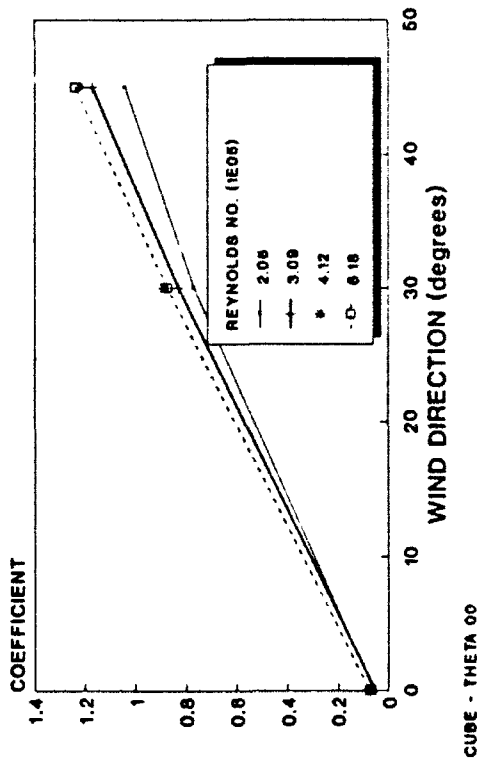
# MEAN MOMENT COEFFICIENT NORMAL DIRECTION



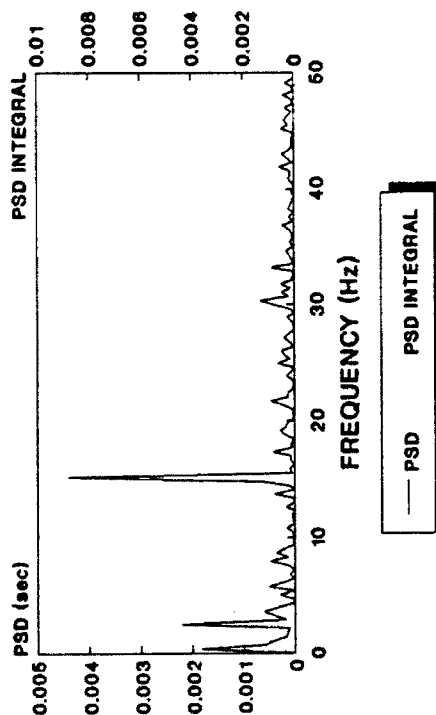
# MEAN FORCE COEFFICIENT LATERAL DIRECTION



# MEAN MOMENT COEFFICIENT LATERAL DIRECTION

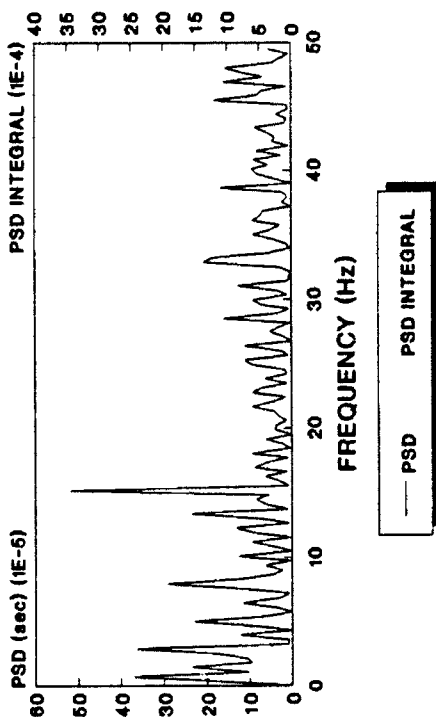


# FORCE COEFF - NORMAL 60 FT/SEC NOMINAL



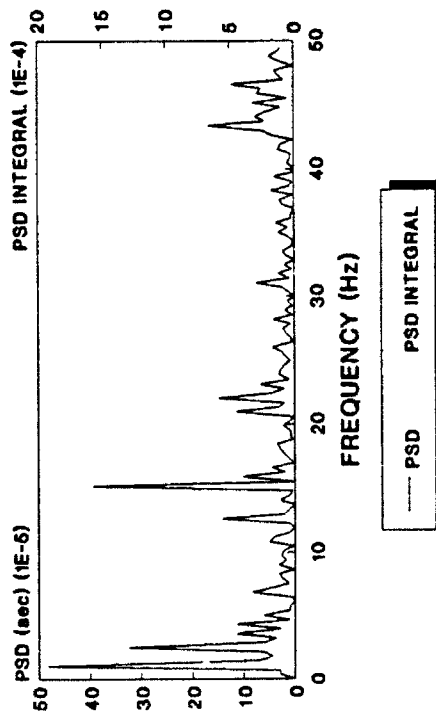
CUBE - THETA 00 - AZIMUTH - 000

# FORCE COEFF - NORMAL 90 FT/SEC NOMINAL



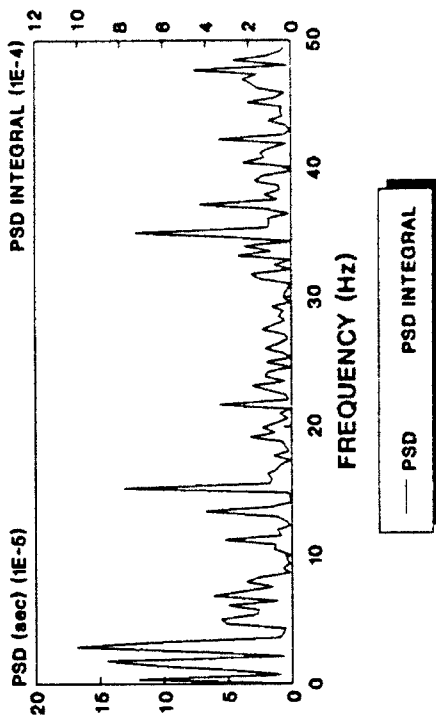
CUBE - THETA 00 - AZIMUTH - 000

# FORCE COEFF - NORMAL 120 FT/SEC NOMINAL



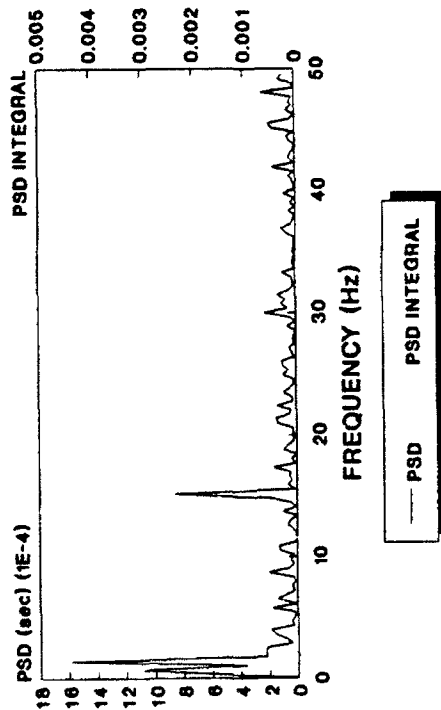
CUBE - THETA 00 - AZIMUTH - 000

# FORCE COEFF - NORMAL 180 FT/SEC NOMINAL



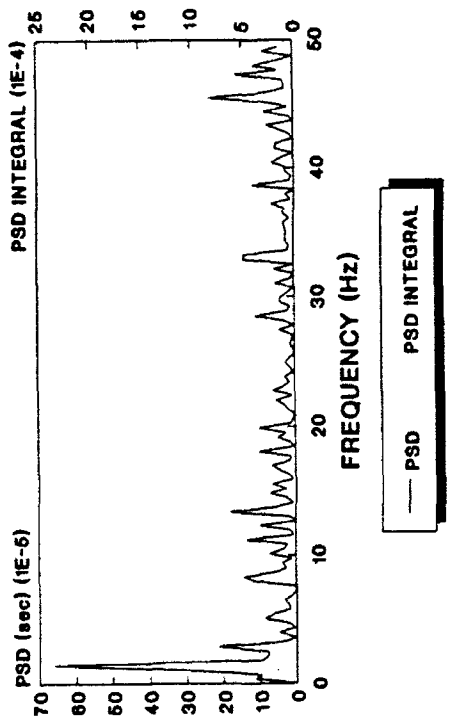
CUBE - THETA 00 - AZIMUTH - 000

# MOMENT COEFF - NORMAL 60 FT/SEC NOMINAL



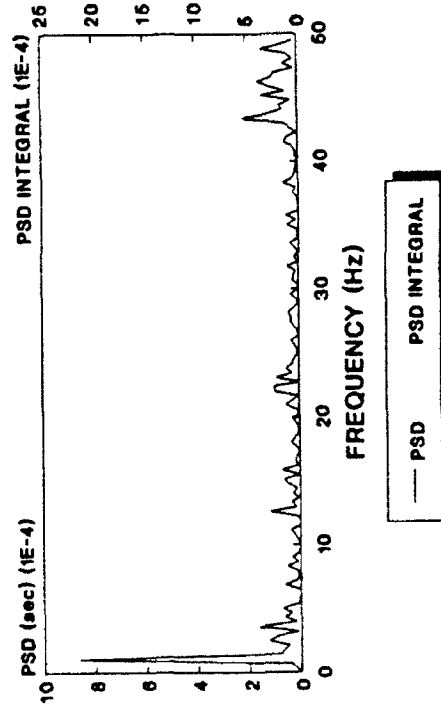
CUBE - THETA 00 - AZIMUTH - 000

# MOMENT COEFF - NORMAL 90 FT/SEC NOMINAL



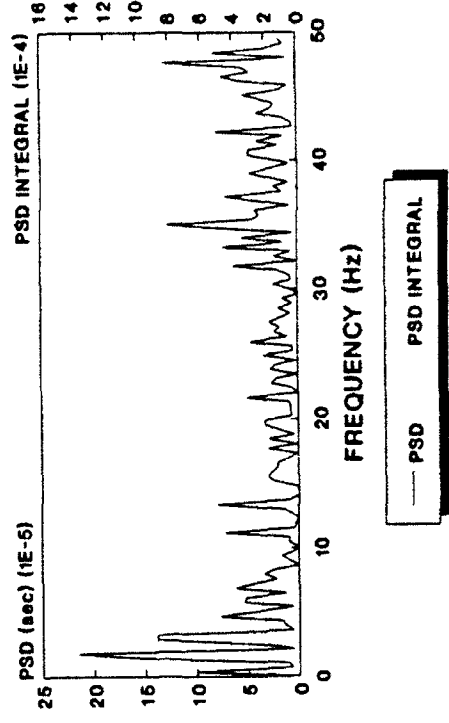
CUBE - THETA 00 - AZIMUTH - 000

# MOMENT COEFF - NORMAL 120 FT/SEC NOMINAL



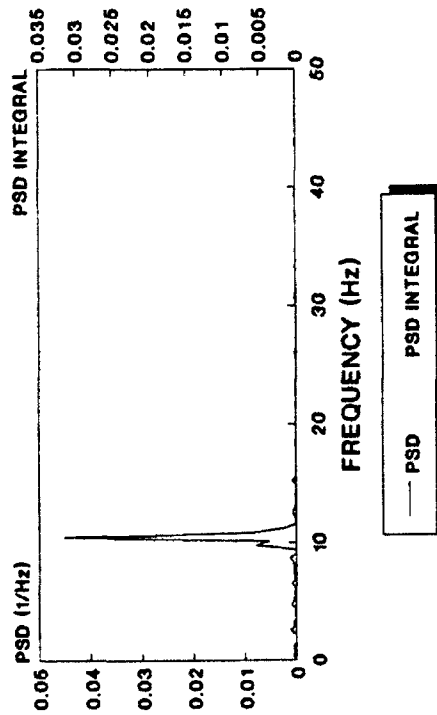
CUBE - THETA 00 - AZIMUTH - 000

# MOMENT COEFF - NORMAL 180 FT/SEC NOMINAL



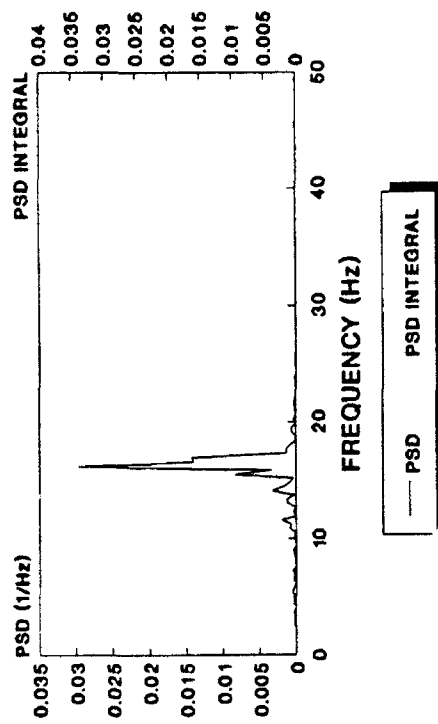
CUBE - THETA 00 - AZIMUTH - 000

# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



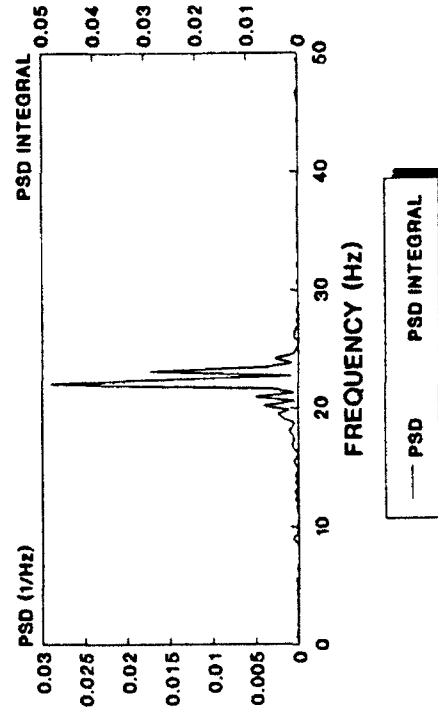
CUBE - THETA 00 - AZIMUTH - 000

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



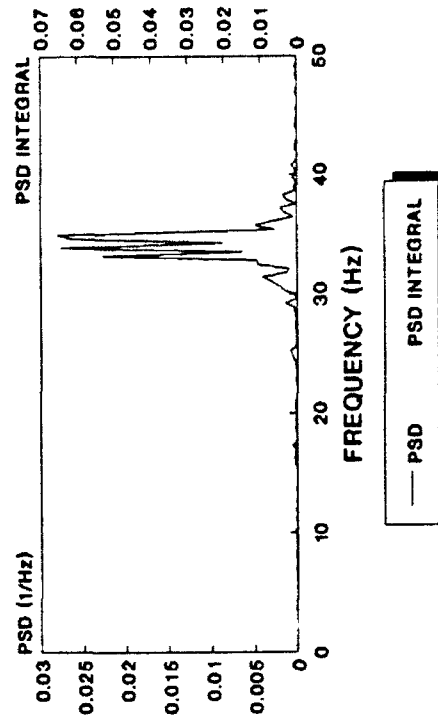
CUBE - THETA 00 - AZIMUTH - 000

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



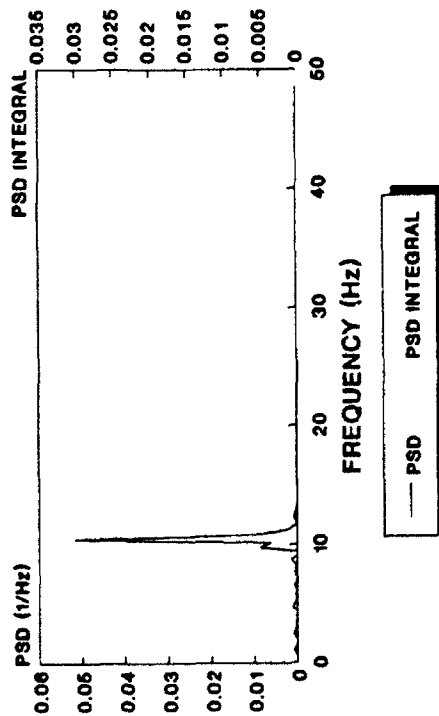
CUBE - THETA 00 - AZIMUTH - 000

# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



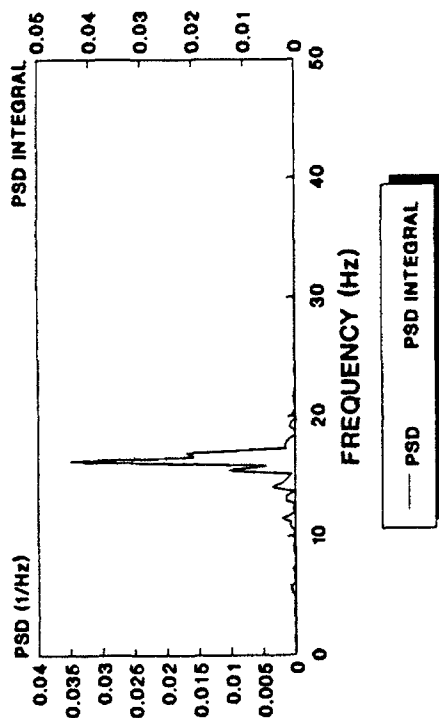
CUBE - THETA 00 - AZIMUTH - 000

# MOMENT COEFF - LATERAL 60 FT/SEC NOMINAL



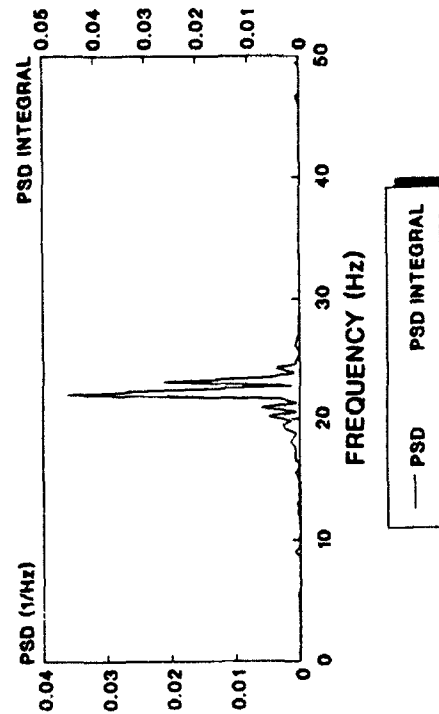
CUBE - THETA 00 - AZIMUTH - 000

# MOMENT COEFF - LATERAL 90 FT/SEC NOMINAL



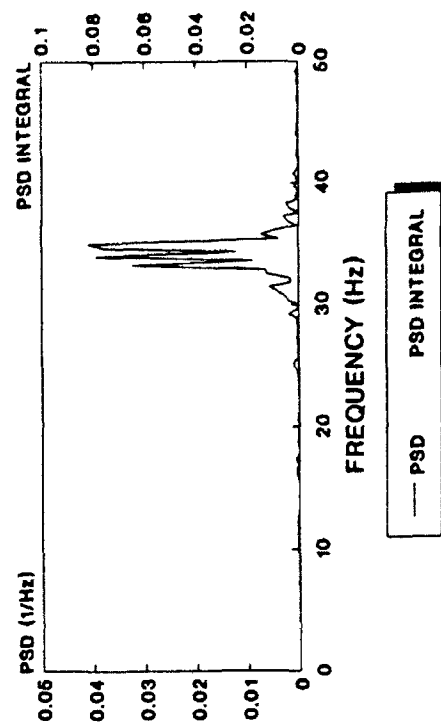
CUBE - THETA 00 - AZIMUTH - 000

# MOMENT COEFF - LATERAL 120 FT/SEC NOMINAL



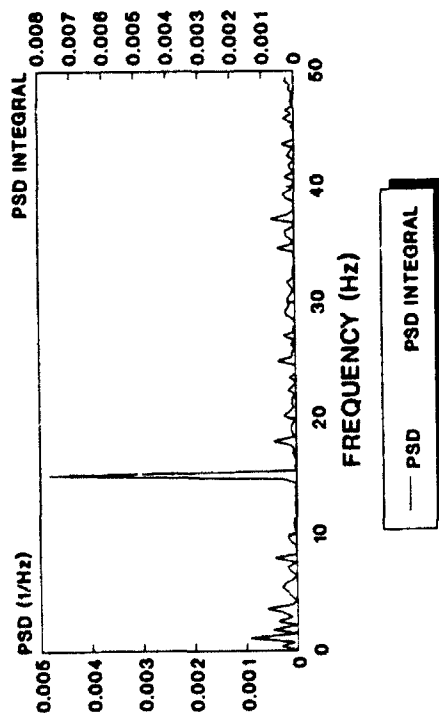
CUBE - THETA 00 - AZIMUTH - 000

# MOMENT COEFF - LATERAL 180 FT/SEC NOMINAL



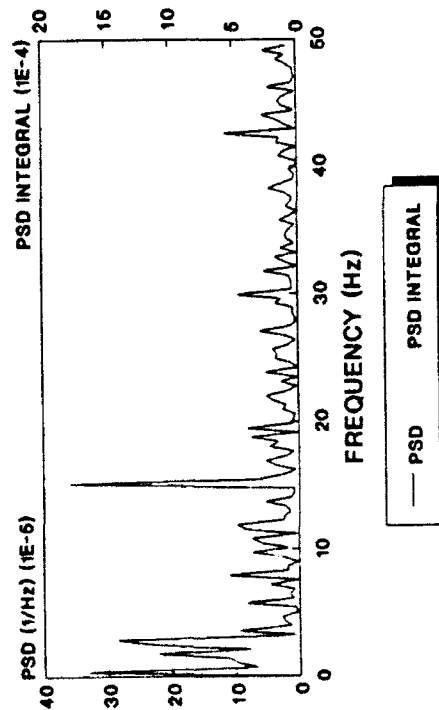
CUBE - THETA 00 - AZIMUTH - 000

# FORCE COEFF - NORMAL 60 FT/SEC NOMINAL



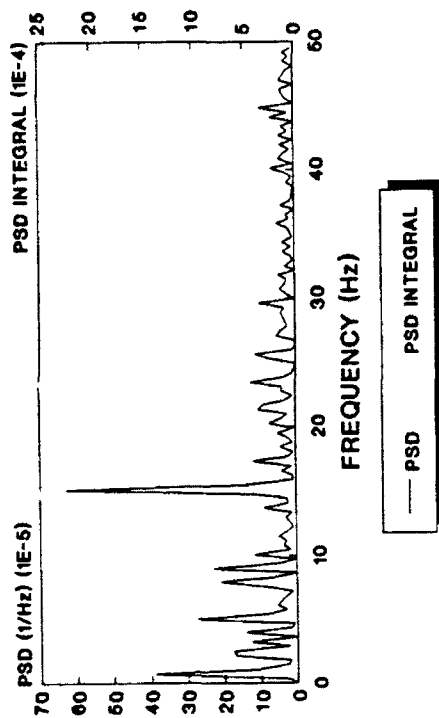
CUBE - THETA 00 - AZIMUTH - 030

# FORCE COEFF - NORMAL 120 FT/SEC NOMINAL



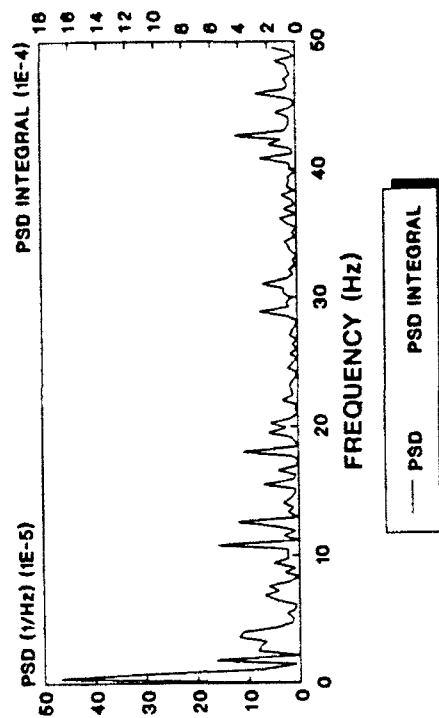
CUBE - THETA 00 - AZIMUTH - 030

# FORCE COEFF - NORMAL 90 FT/SEC NOMINAL



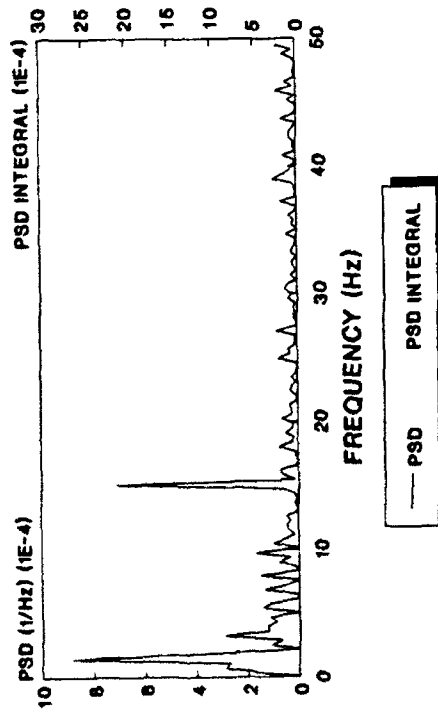
CUBE - THETA 00 - AZIMUTH - 030

# FORCE COEFF - NORMAL 180 FT/SEC NOMINAL



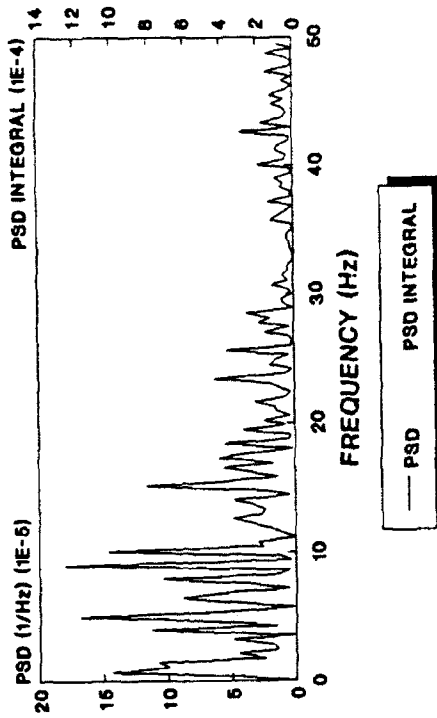
CUBE - THETA 00 - AZIMUTH - 030

# MOMENT COEFF - NORMAL 60 FT/SEC NOMINAL



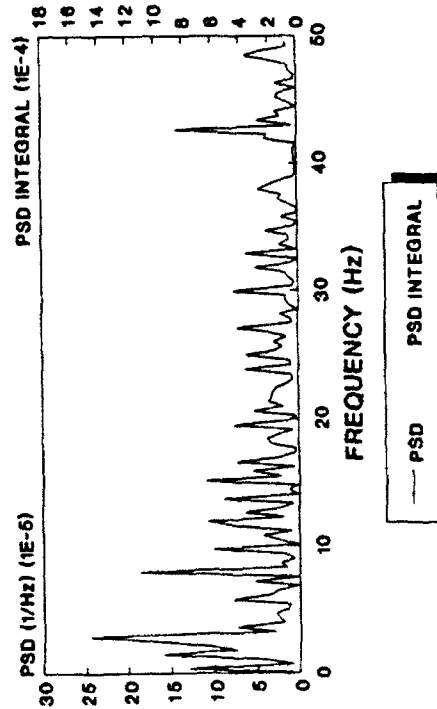
CUBE - THETA 00 - AZIMUTH - 030

# MOMENT COEFF - NORMAL 90 FT/SEC NOMINAL



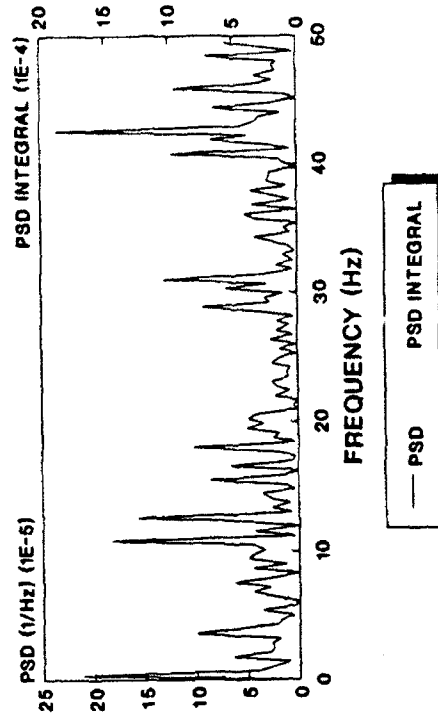
CUBE - THETA 00 - AZIMUTH - 030

# MOMENT COEFF - NORMAL 120 FT/SEC NOMINAL



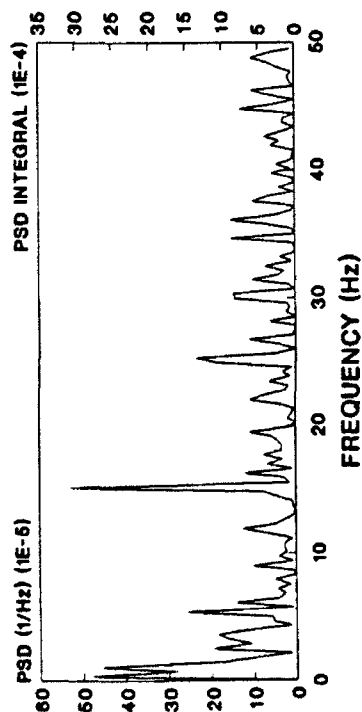
CUBE - THETA 00 - AZIMUTH - 030

# MOMENT COEFF - NORMAL 180 FT/SEC NOMINAL



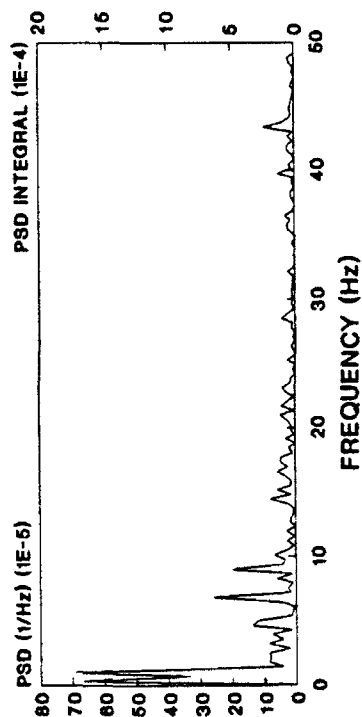
CUBE - THETA 00 - AZIMUTH - 030

# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



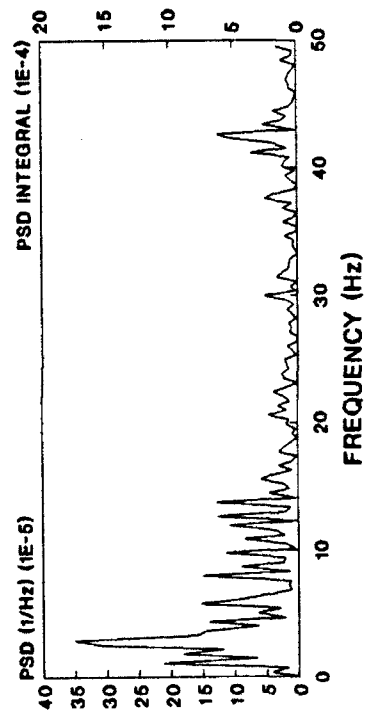
CUBE - THETA 00 - AZIMUTH - 030

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



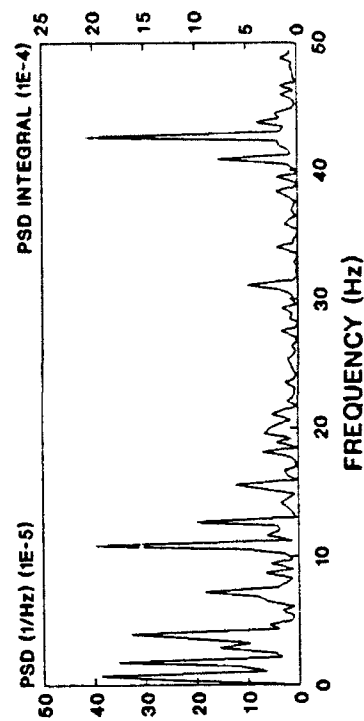
CUBE - THETA 00 - AZIMUTH - 030

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



CUBE - THETA 00 - AZIMUTH - 030

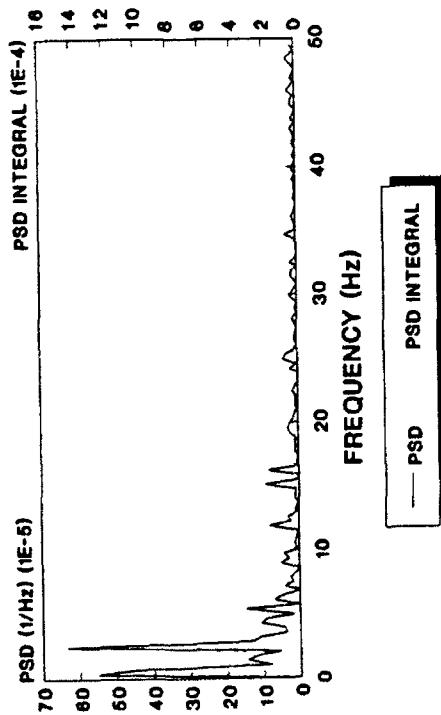
# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



CUBE - THETA 00 - AZIMUTH - 030

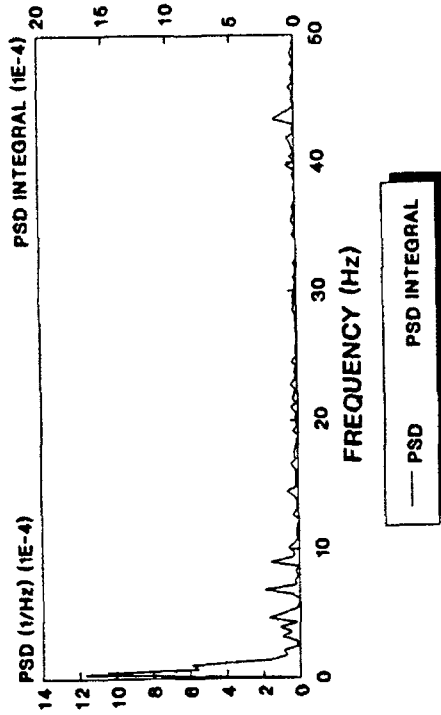


# MOMENT COEFF - LATERAL 60 FT/SEC NOMINAL



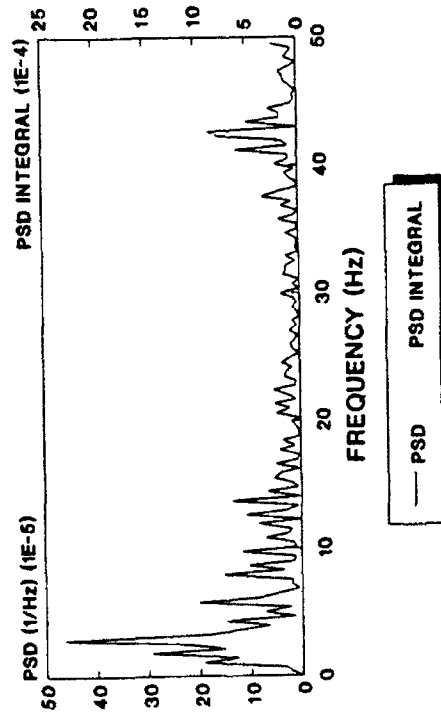
CUBE - THETA 00 - AZIMUTH - 030

# MOMENT COEFF - LATERAL 90 FT/SEC NOMINAL



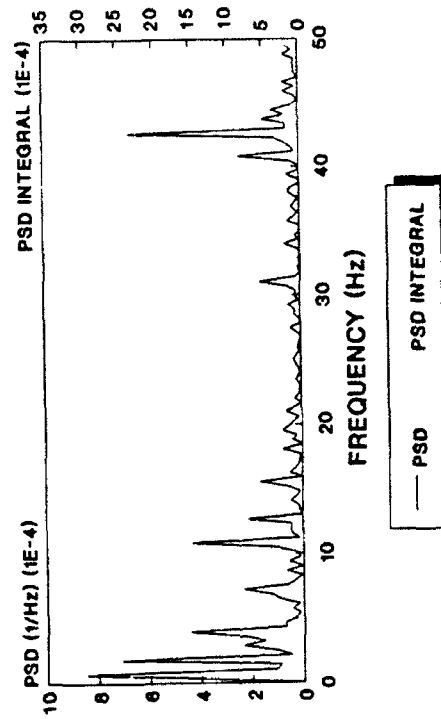
CUBE - THETA 00 - AZIMUTH - 030

# MOMENT COEFF - LATERAL 120 FT/SEC NOMINAL



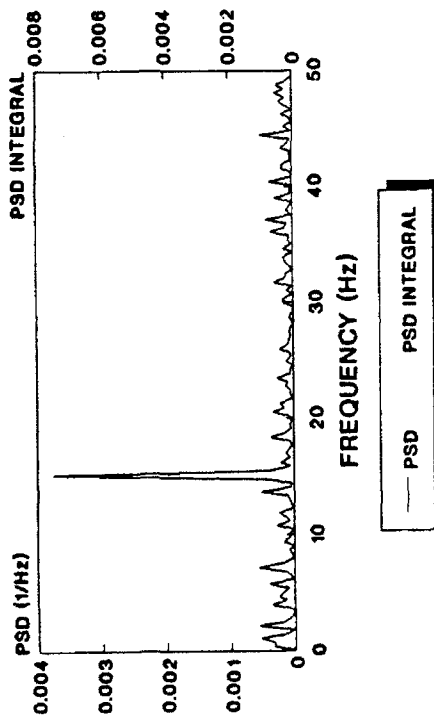
CUBE - THETA 00 - AZIMUTH - 030

# MOMENT COEFF - LATERAL 180 FT/SEC NOMINAL



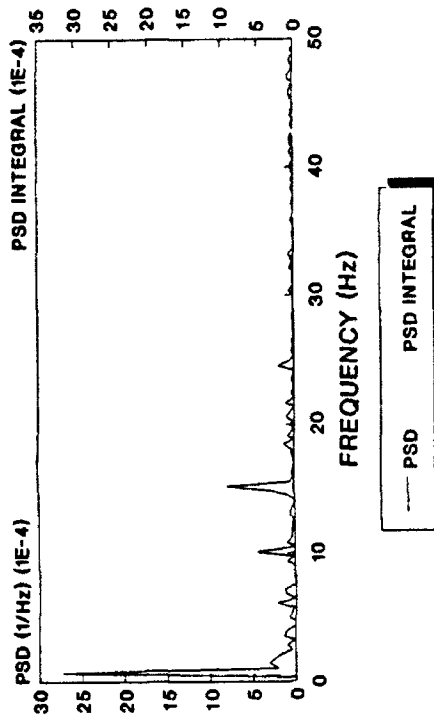
CUBE - THETA 00 - AZIMUTH - 030

# FORCE COEFF - NORMAL 60 FT/SEC NOMINAL



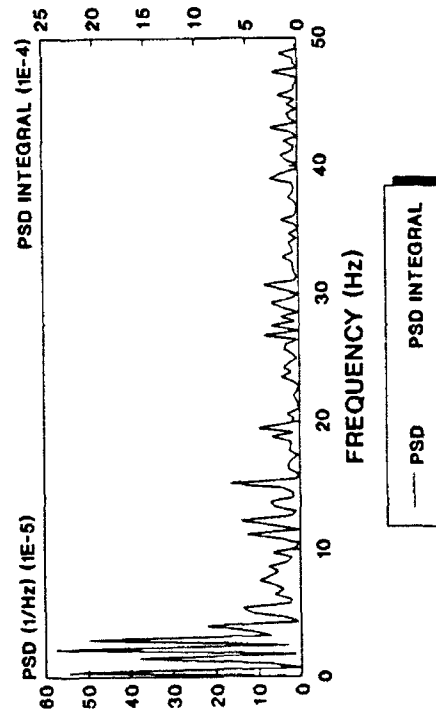
CUBE - THETA 00 - AZIMUTH - 045

# FORCE COEFF - NORMAL 90 FT/SEC NOMINAL



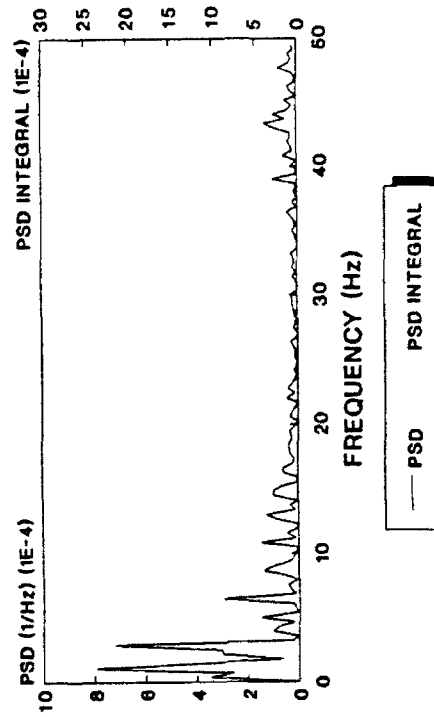
CUBE - THETA 00 - AZIMUTH - 045

# FORCE COEFF - NORMAL 120 FT/SEC NOMINAL



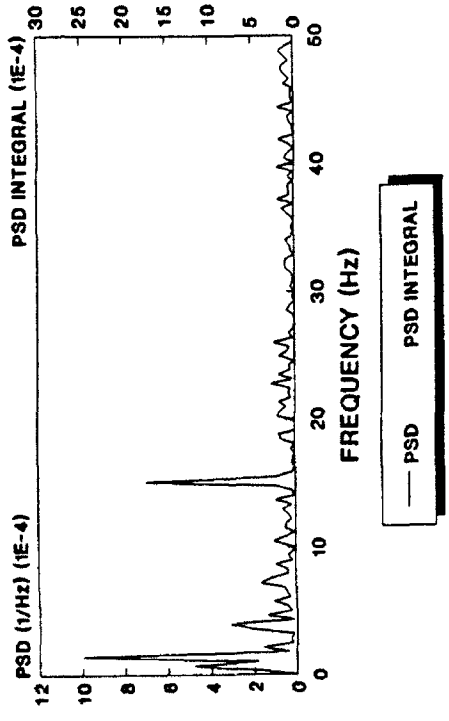
CUBE - THETA 00 - AZIMUTH - 045

# FORCE COEFF - NORMAL 180 FT/SEC NOMINAL



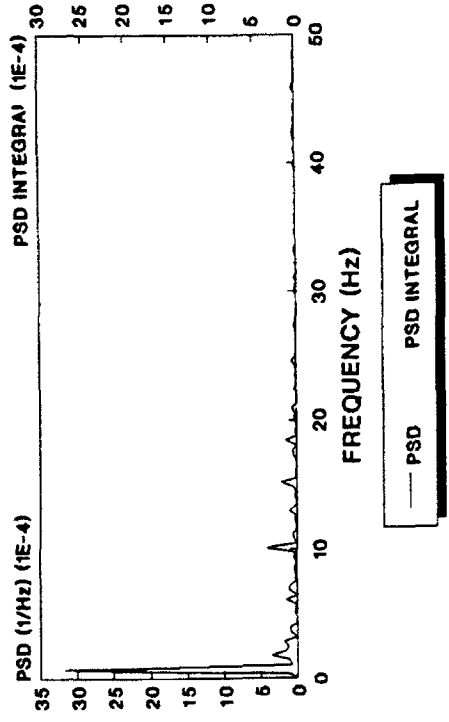
CUBE - THETA 00 - AZIMUTH - 045

# MOMENT COEFF - NORMAL 60 FT/SEC NOMINAL



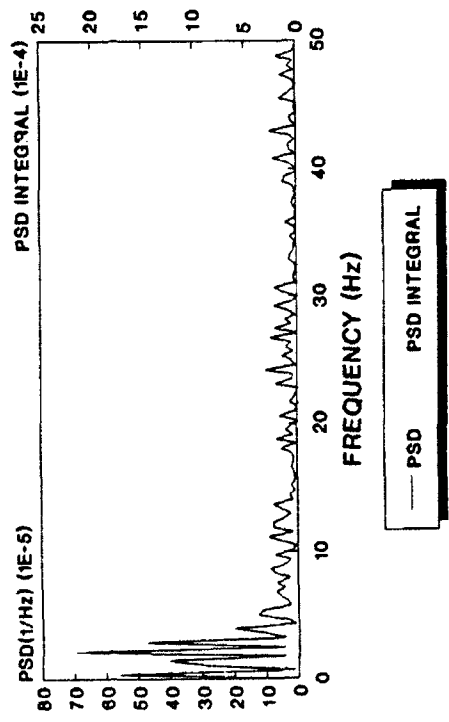
CUBE - THETA 00 - AZIMUTH - 045

# MOMENT COEFF - NORMAL 90 FT/SEC NOMINAL



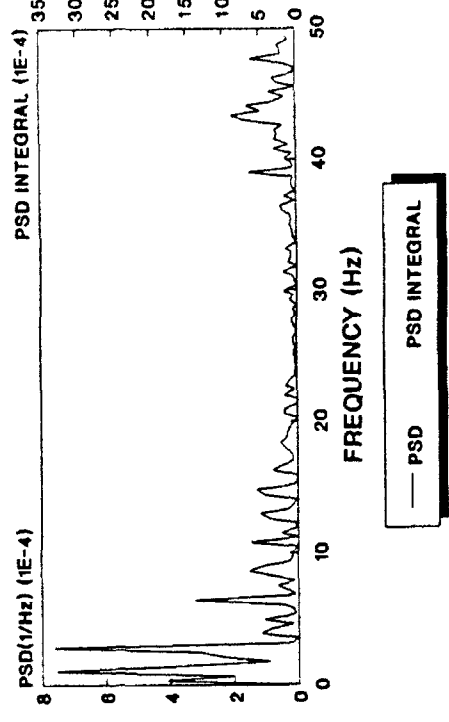
CUBE - THETA 00 - AZIMUTH - 045

# MOMENT COEFF - NORMAL 120 FT/SEC NOMINAL



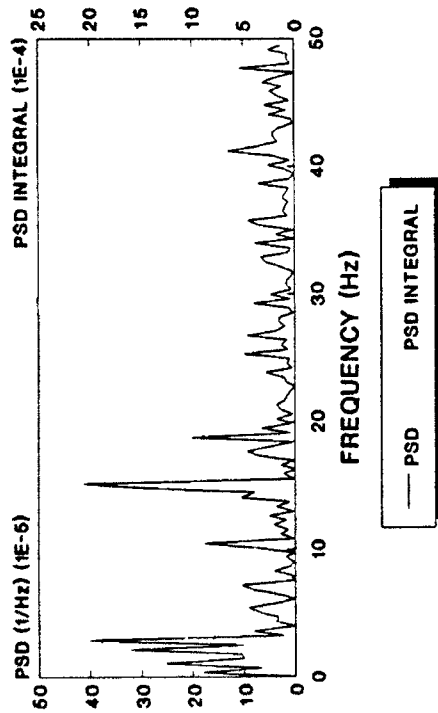
CUBE - THETA 00 - AZIMUTH - 045

# MOMENT COEFF - NORMAL 180 FT/SEC NOMINAL



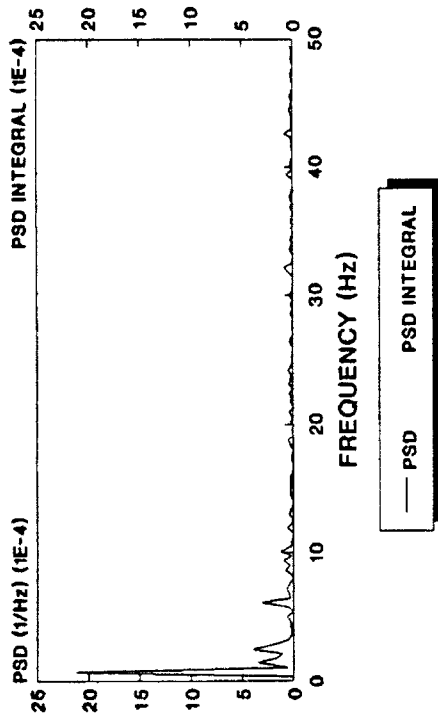
CUBE - THETA 00 - AZIMUTH - 045

# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



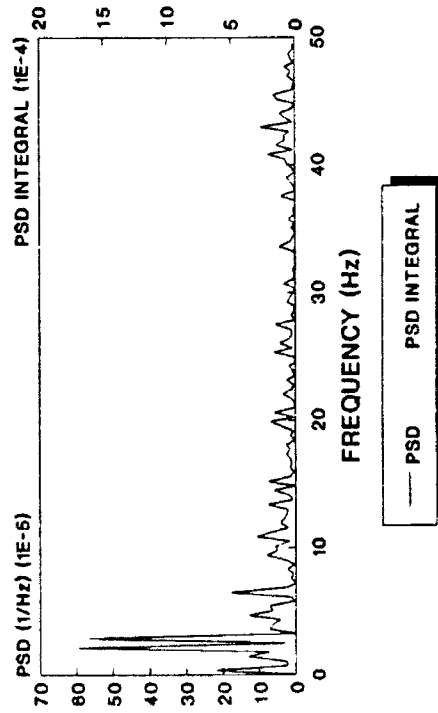
CUBE - THETA 00 - AZIMUTH - 045

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



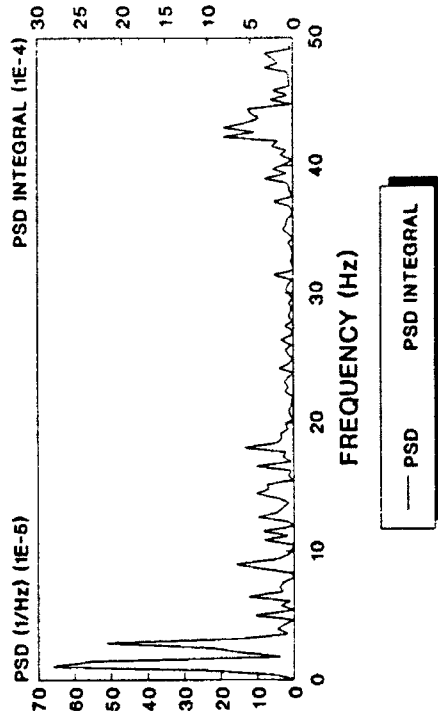
CUBE - THETA 00 - AZIMUTH - 045

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



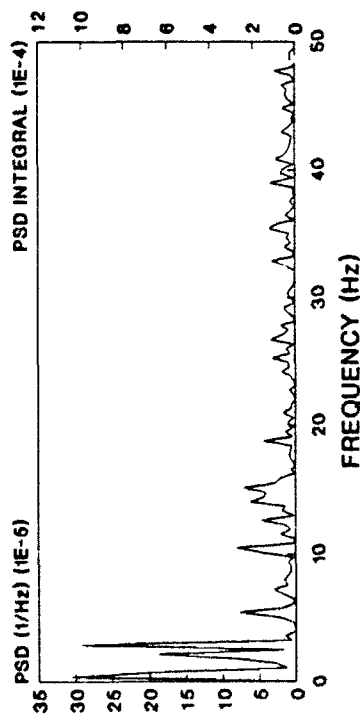
CUBE - THETA 00 - AZIMUTH - 045

# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



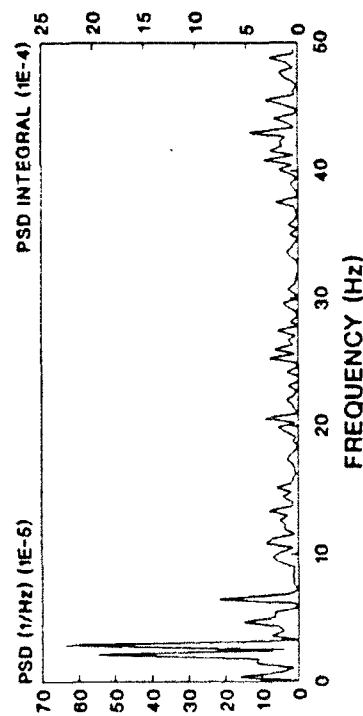
CUBE - THETA 00 - AZIMUTH - 045

# MOMENT COEFF - LATERAL 60 FT/SEC NOMINAL



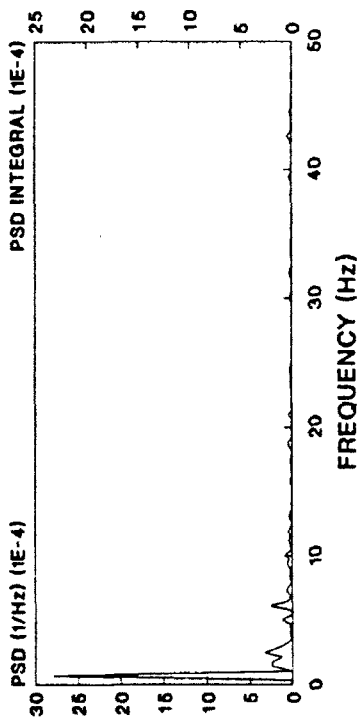
CUBE - THETA 00 - AZIMUTH - 046

# MOMENT COEFF - LATERAL 120 FT/SEC NOMINAL



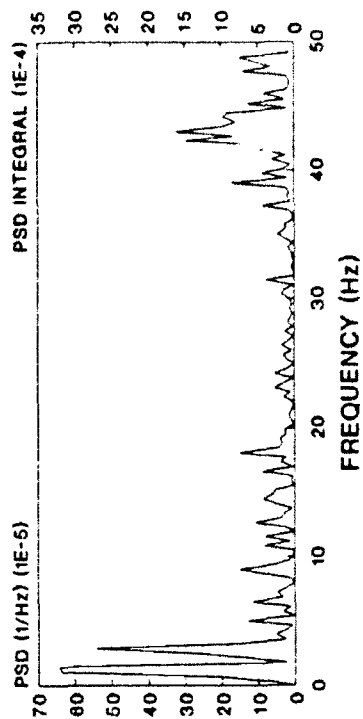
CUBE - THETA 00 - AZIMUTH - 046

# MOMENT COEFF - LATERAL 90 FT/SEC NOMINAL



CUBE - THETA 00 - AZIMUTH - 046

# MOMENT COEFF - LATERAL 180 FT/SEC NOMINAL



CUBE - THETA 00 - AZIMUTH - 046

## DATA REPORT

SHAPE:	CUBE
DECLINATION [THETA (degrees)]:	30
DIMENSIONS [LxWxH (in)]:	9.0 x 7.7 x 8.5
WEIGHT (gm):	951.1
TORSION FREQUENCY (Hz):	34
LATERAL (SIDE BEND) FREQUENCY (Hz):	65
NORMAL (AFT BEND) FREQUENCY (Hz):	81
AZIMUTHS (degrees):	0, 30, 45, 60, 90 120, 135, 150, 180

### GRAPH CORRECTIONS:

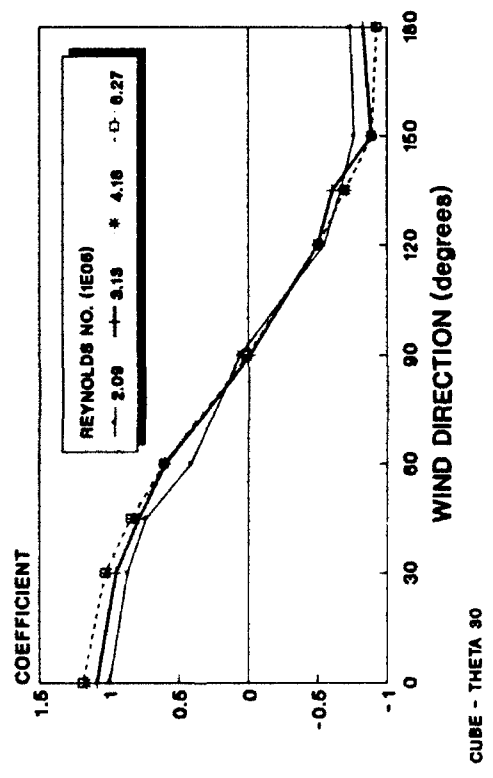
- The mean value of the **ROLL** moment coefficients should be divided by 12.
- The PSD and PSD Integral values of the **ROLL** moment coefficients should be divided by 144.

### OBSERVATIONS:

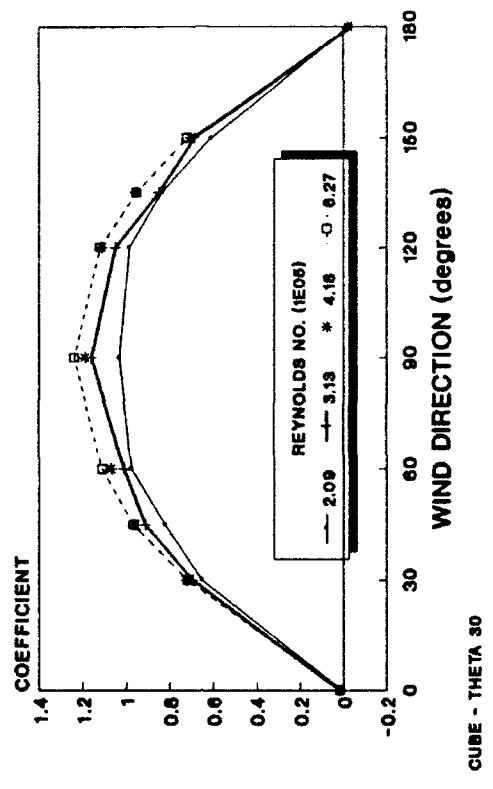
- Very good shedding is seen in the normal data at 90 degrees azimuth. This shedding is nearly single frequency in nature. This shed can be seen in the roll data as well but a dominating frequency near 39 Hz makes it difficult to see.
- A large frequency spike near 39 - 40 Hz is seen in much of the data.
- Good multifrequency shed can be seen in the lateral data at 30 degrees azimuth. However it is over shadowed by the system resonance at 39 - 40 Hz. Good multifrequency shedding can be seen in much of the data at 120, 135, and 150 degrees azimuth.

- A poor shed is seen in the lateral data at an azimuth of 0 degrees and in the lateral and roll data at 180 degrees. The shed at 0 degrees is more noticeable in spite of the noisy signal.

# MEAN FORCE COEFFICIENT NORMAL DIRECTION

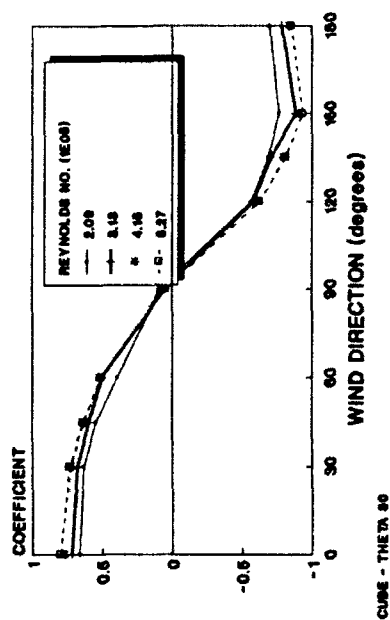


# MEAN FORCE COEFFICIENT LATERAL DIRECTION

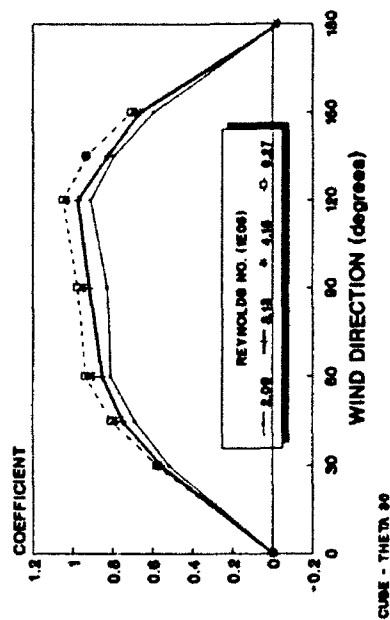




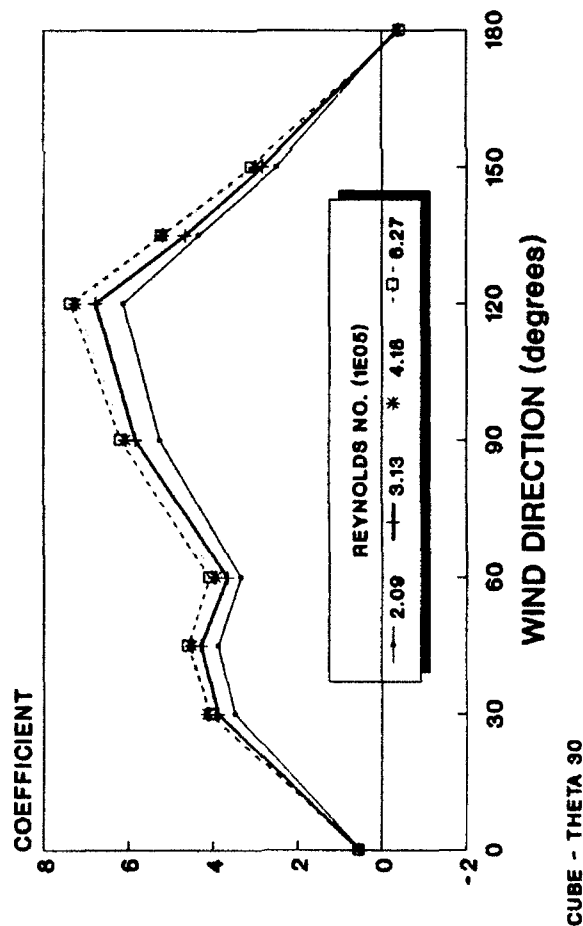
# MEAN MOMENT COEFFICIENT NORMAL DIRECTION



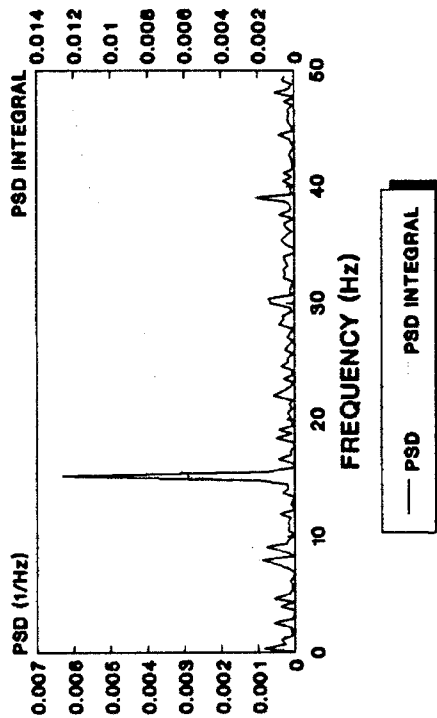
# MEAN MOMENT COEFFICIENT LATERAL DIRECTION



# MEAN MOMENT COEFFICIENT ROLL DIRECTION

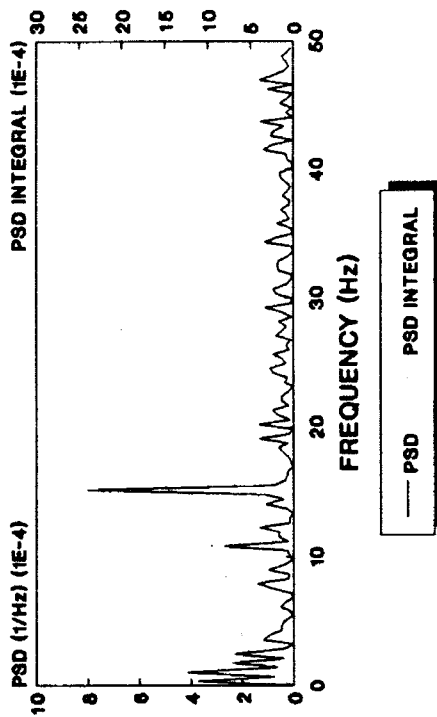


# FORCE COEFF - NORMAL 60 FT/SEC NOMINAL



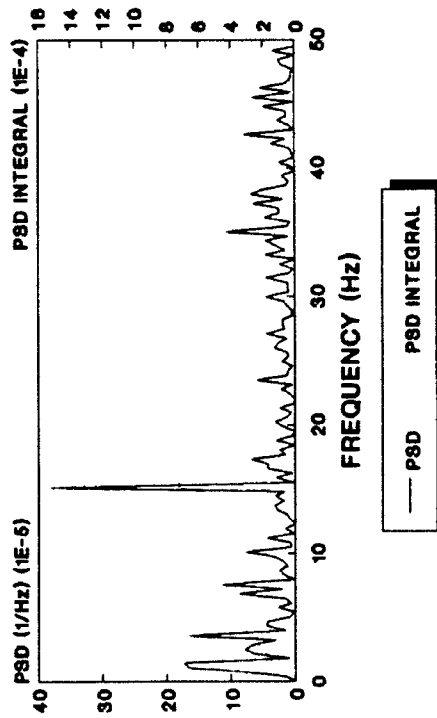
CUBE - HT 8.6 - THETA 30 - AZ 000

# FORCE COEFF - NORMAL 90 FT/SEC NOMINAL



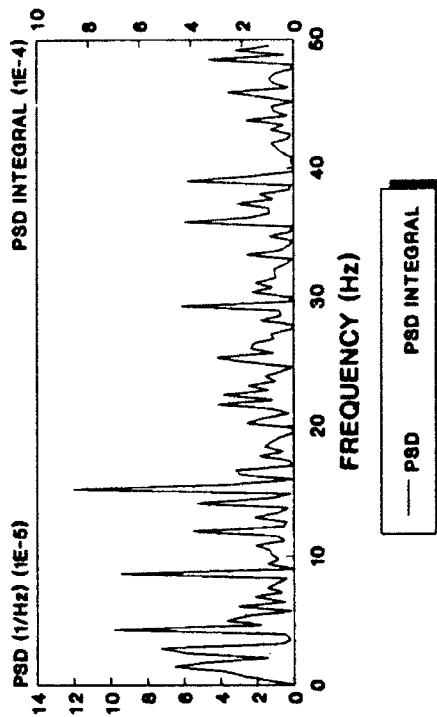
CUBE - HT 8.6 - THETA 30 - AZ 000

# FORCE COEFF - NORMAL 120 FT/SEC NOMINAL



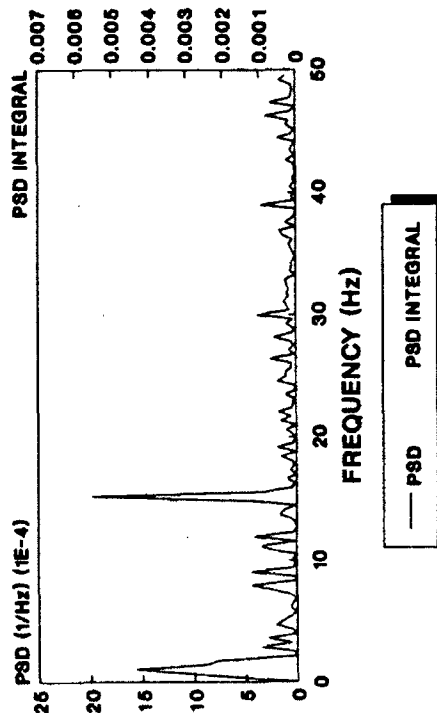
CUBE - HT 8.6 - THETA 30 - AZ 000

# FORCE COEFF - NORMAL 180 FT/SEC NOMINAL



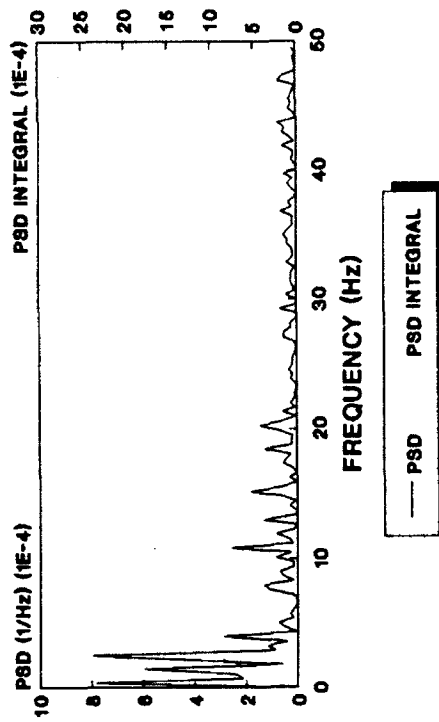
CUBE - HT 8.6 - THETA 30 - AZ 000

# MOMENT COEFF - NORMAL 60 FT/SEC NOMINAL



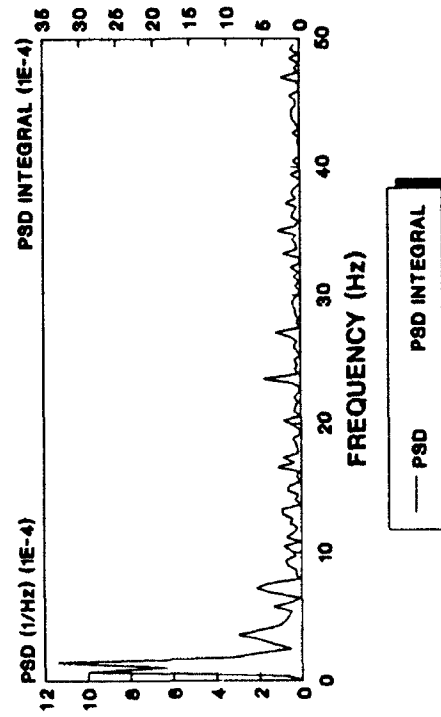
CUBE - MT 8.6 - THETA 30 - AZ 000

# MOMENT COEFF - NORMAL 90 FT/SEC NOMINAL



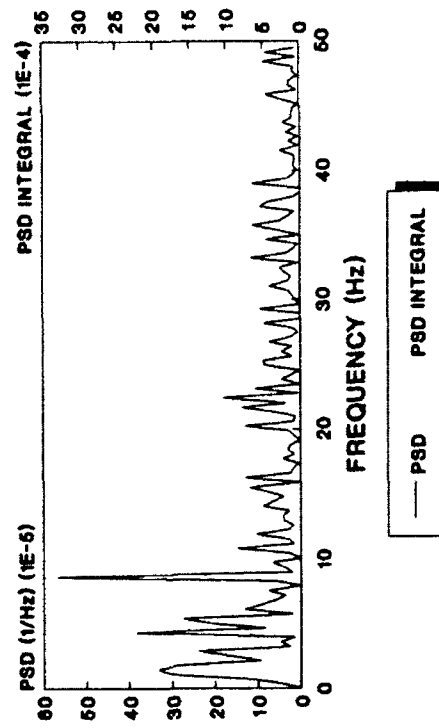
CUBE - MT 8.6 - THETA 30 - AZ 000

# MOMENT COEFF - NORMAL 120 FT/SEC NOMINAL



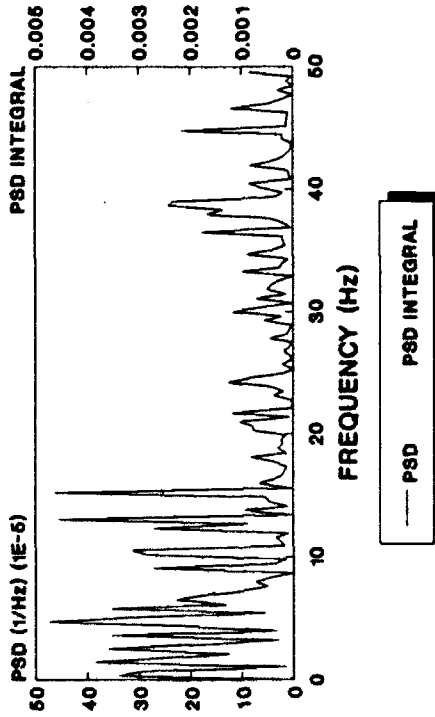
CUBE - MT 8.6 - THETA 30 - AZ 000

# MOMENT COEFF - NORMAL 180 FT/SEC NOMINAL



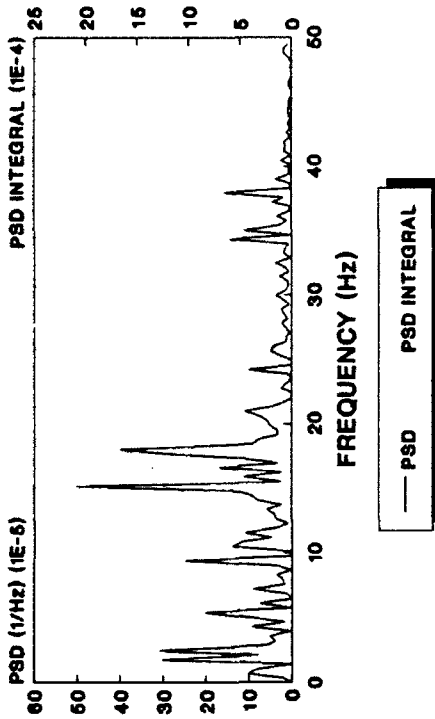
CUBE - MT 8.6 - THETA 30 - AZ 000

# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



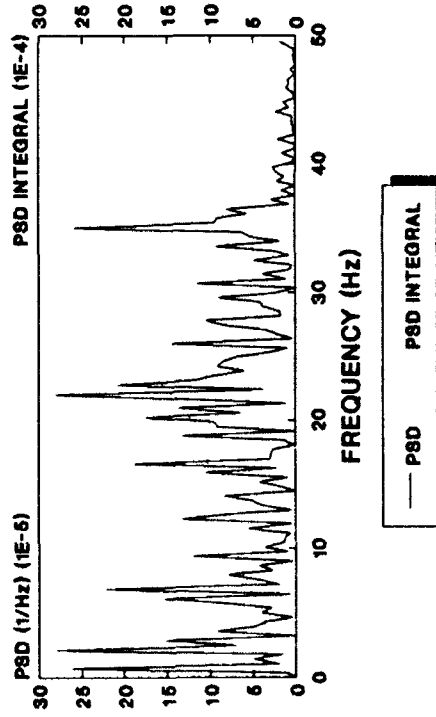
CUBE - HT 8.6 - THETA 30 - AZ 000

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



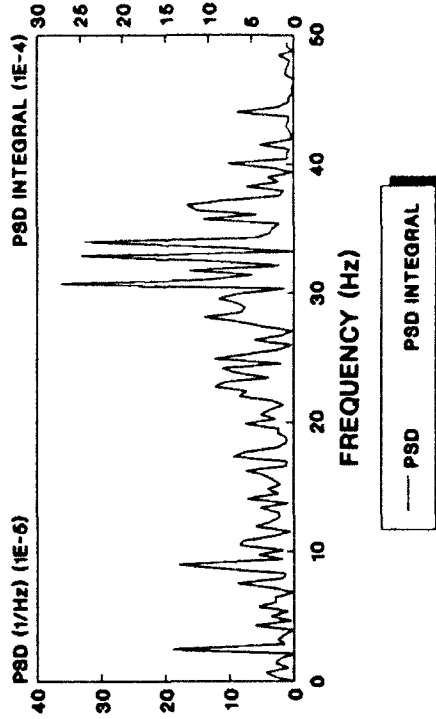
CUBE - HT 8.6 - THETA 30 - AZ 000

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



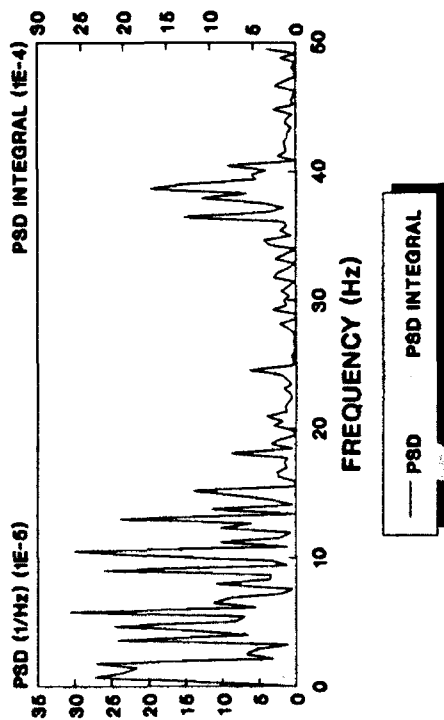
CUBE - HT 8.6 - THETA 30 - AZ 000

# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



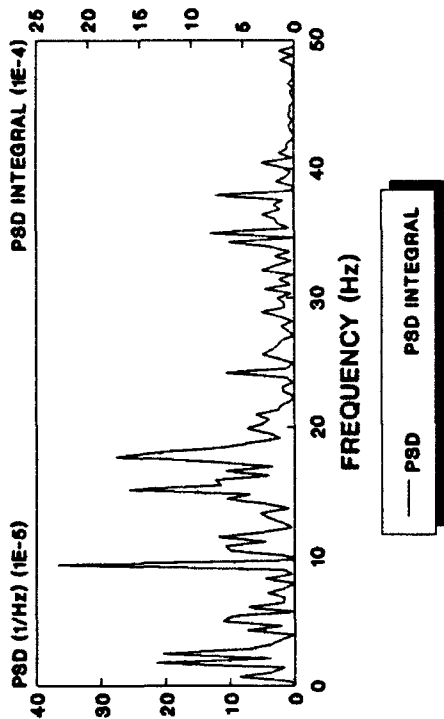
CUBE - HT 8.6 - THETA 30 - AZ 000

# **MOMENT COEFF - LATERAL** **60 FT/SEC NOMINAL**



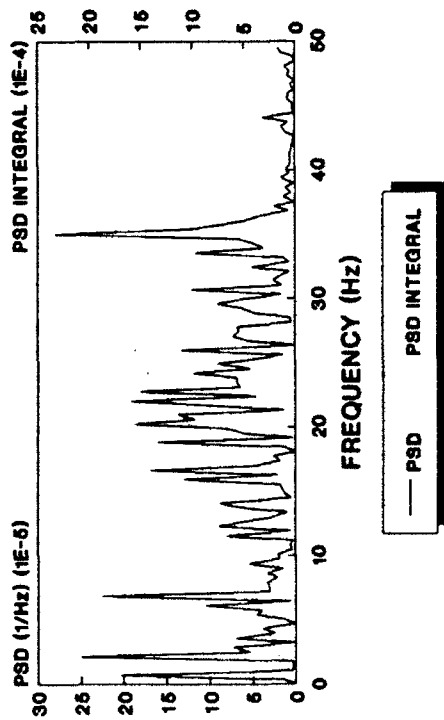
CUBE - HT 8.6 - THETA 30 - AZ 000

# **MOMENT COEFF - LATERAL** **90 FT/SEC NOMINAL**



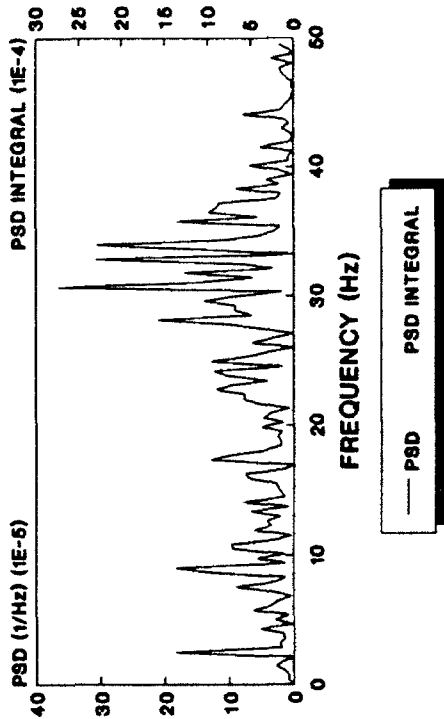
CUBE - HT 8.6 - THETA 30 - AZ 000

# **MOMENT COEFF - LATERAL** **120 FT/SEC NOMINAL**



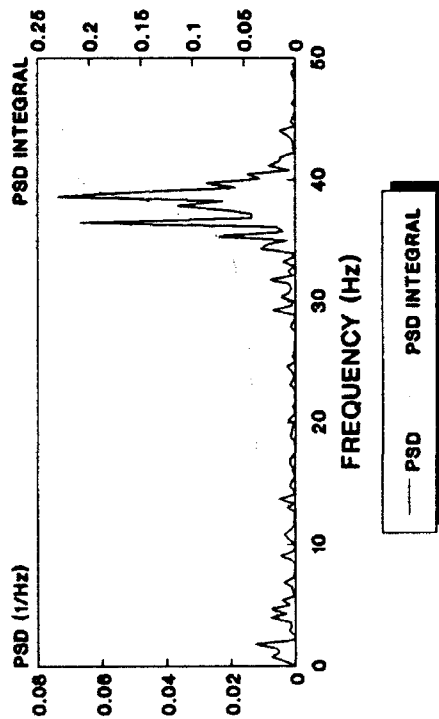
CUBE - HT 8.6 - THETA 30 - AZ 000

# **MOMENT COEFF - LATERAL** **180 FT/SEC NOMINAL**



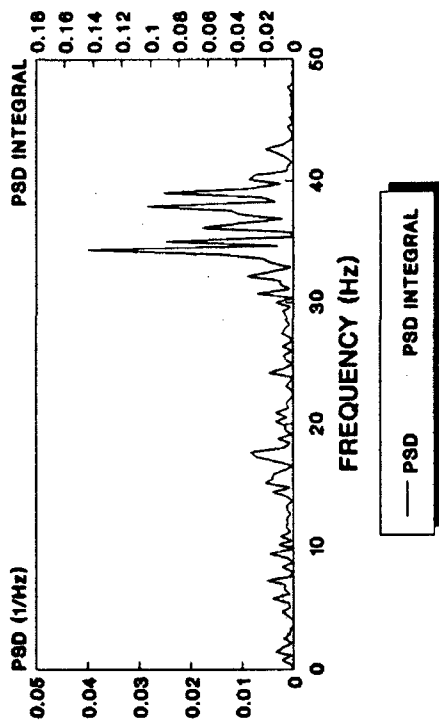
CUBE - HT 8.6 - THETA 30 - AZ 000

# MOMENT COEFF - ROLL 60 FT/SEC NOMINAL



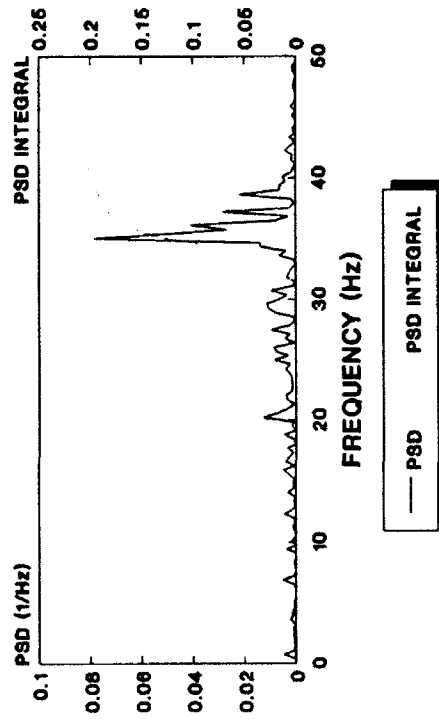
CUBE - HT 8.6 - THETA 30 - AZ 000

# MOMENT COEFF - ROLL 90 FT/SEC NOMINAL



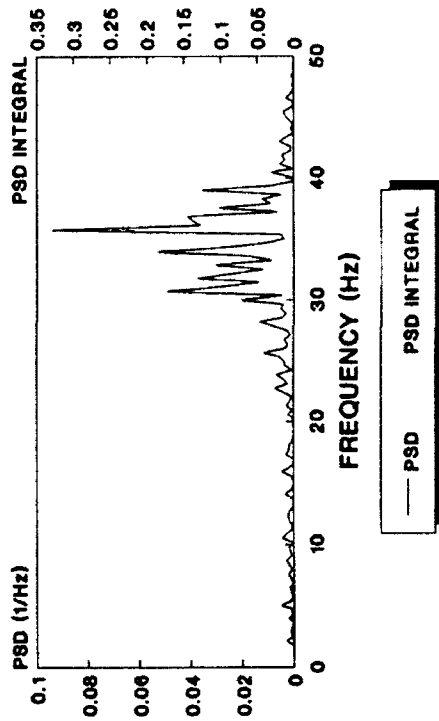
CUBE - HT 8.6 - THETA 30 - AZ 000

# MOMENT COEFF - ROLL 120 FT/SEC NOMINAL



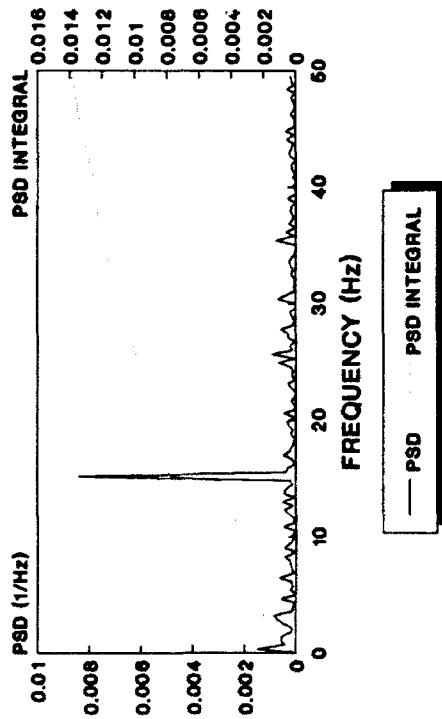
CUBE - HT 8.6 - THETA 30 - AZ 000

# MOMENT COEFF - ROLL 180 FT/SEC NOMINAL



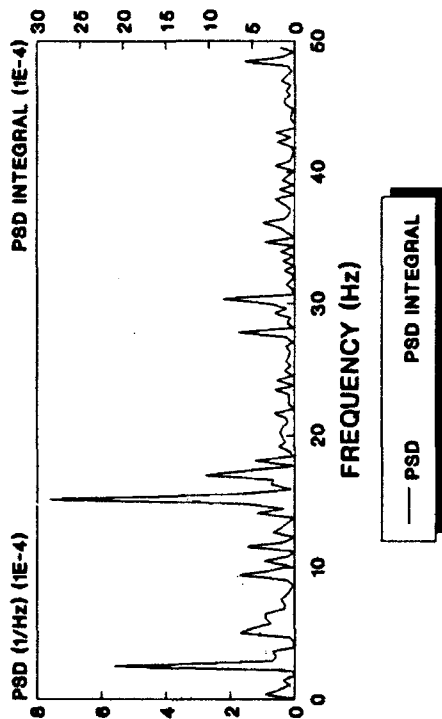
CUBE - HT 8.6 - THETA 30 - AZ 000

# FORCE COEFF - NORMAL 60 FT/SEC NOMINAL



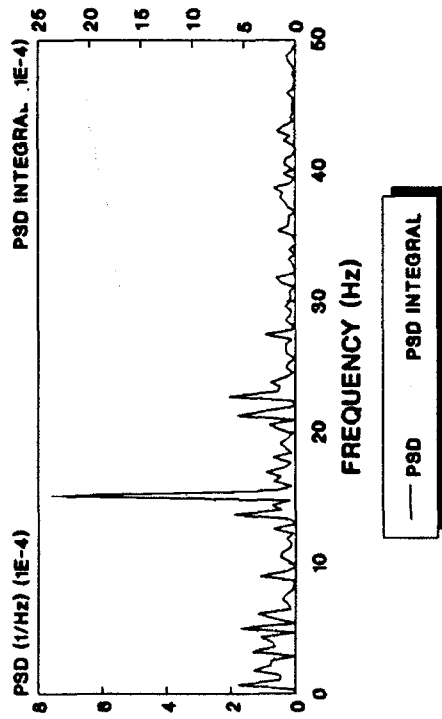
CUBE - HT 8.6 - THETA 30 - AZ 030

# FORCE COEFF - NORMAL 90 FT/SEC NOMINAL



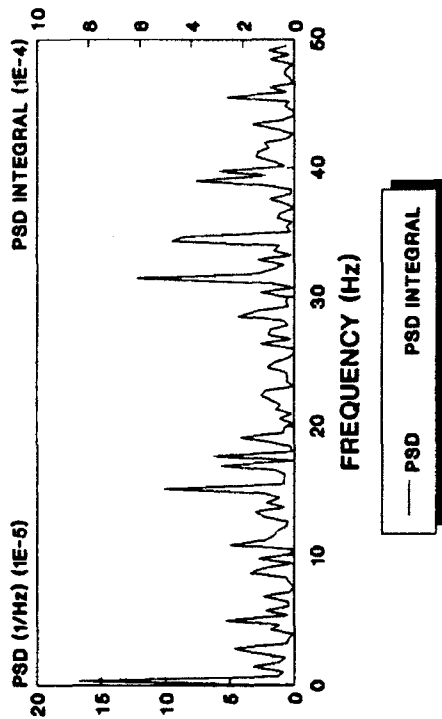
CUBE - HT 8.6 - THETA 30 - AZ 030

# FORCE COEFF - NORMAL 120 FT/SEC NOMINAL



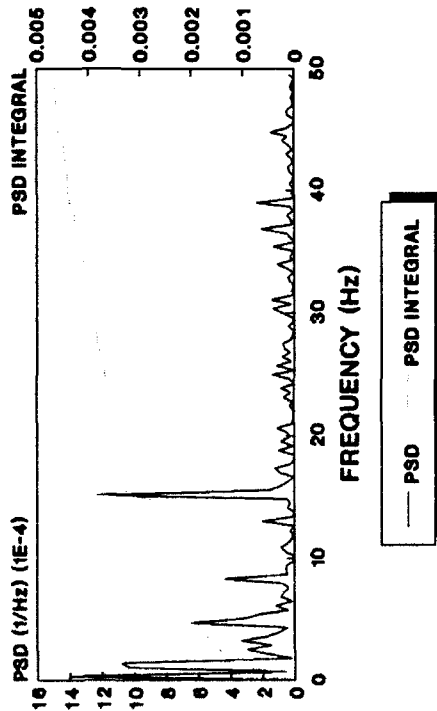
CUBE - HT 8.6 - THETA 30 - AZ 030

# FORCE COEFF - NORMAL 180 FT/SEC NOMINAL



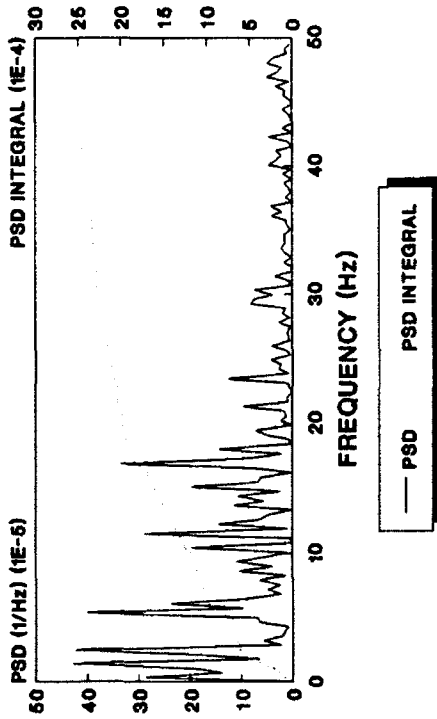
CUBE - HT 8.6 - THETA 30 - AZ 030

# MOMENT COEFF - NORMAL 60 FT/SEC NOMINAL



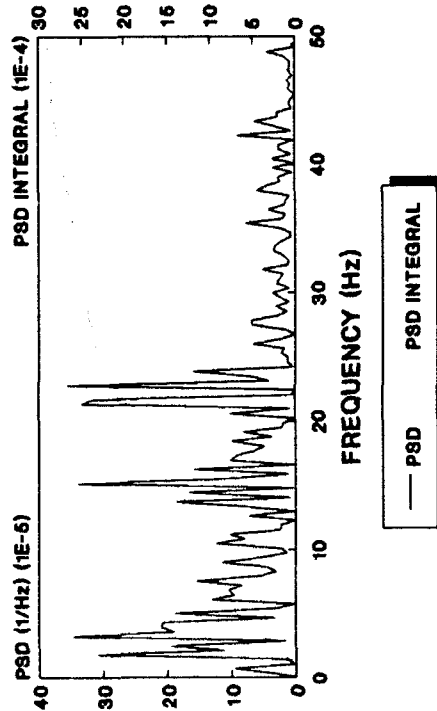
CUBE - HT 8.6 - THETA 30 - AZ 030

# MOMENT COEFF - NORMAL 90 FT/SEC NOMINAL



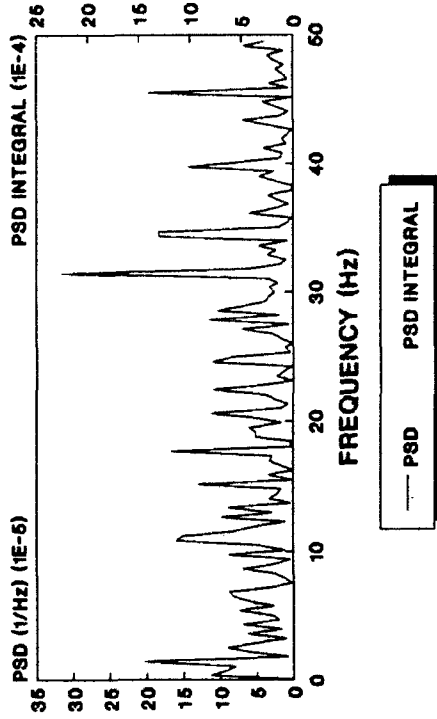
CUBE - HT 8.6 - THETA 30 - AZ 030

# MOMENT COEFF - NORMAL 120 FT/SEC NOMINAL



CUBE - HT 8.6 - THETA 30 - AZ 030

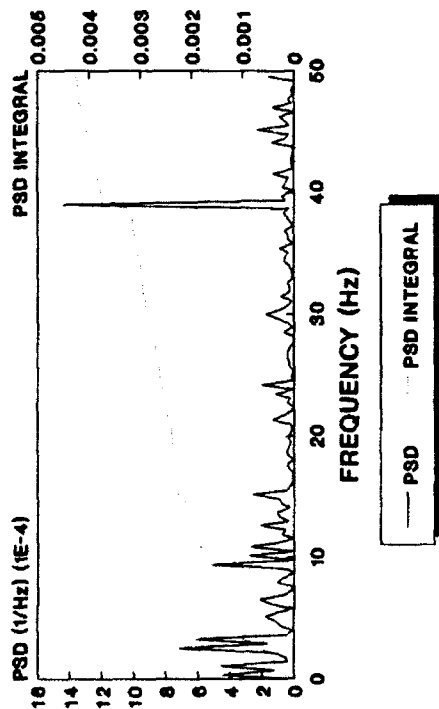
# MOMENT COEFF - NORMAL 180 FT/SEC NOMINAL



CUBE - HT 8.6 - THETA 30 - AZ 030

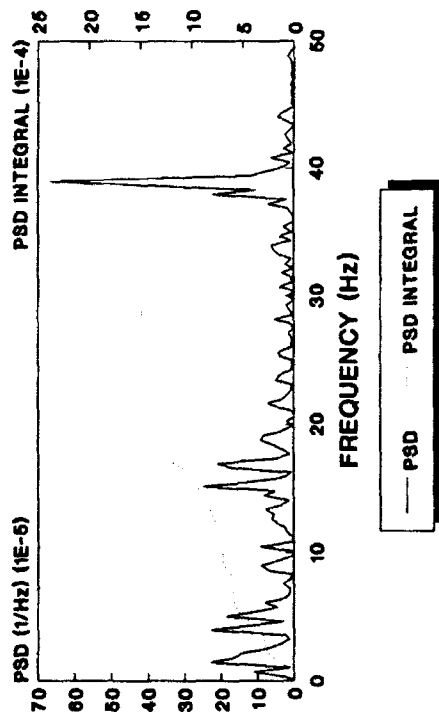


# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



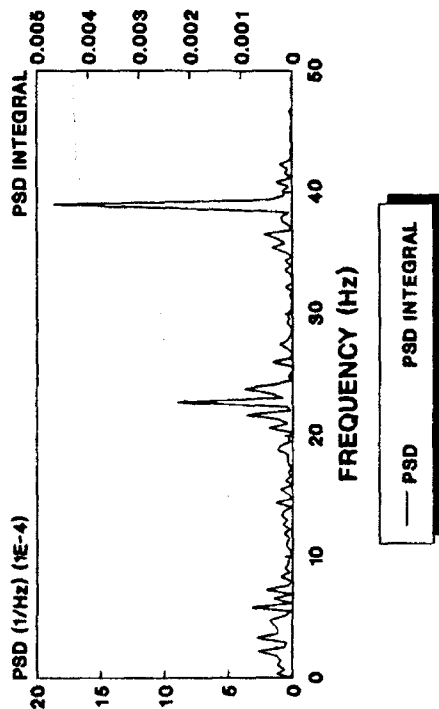
CUBE - HT 8.5 - THETA 30 - AZ 030

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



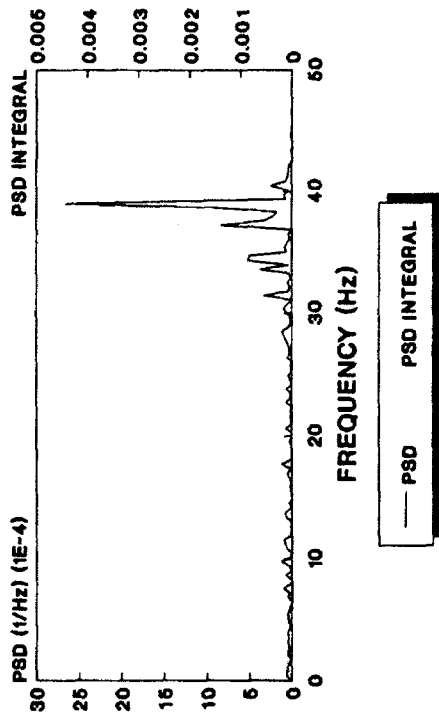
CUBE - HT 8.5 - THETA 30 - AZ 030

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



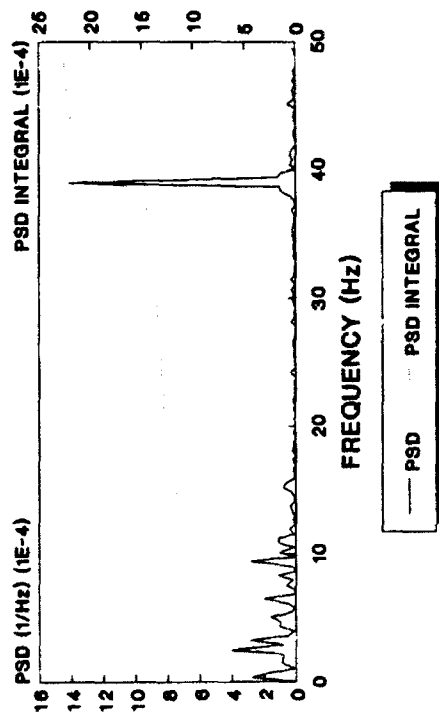
CUBE - HT 8.5 - THETA 30 - AZ 030

# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



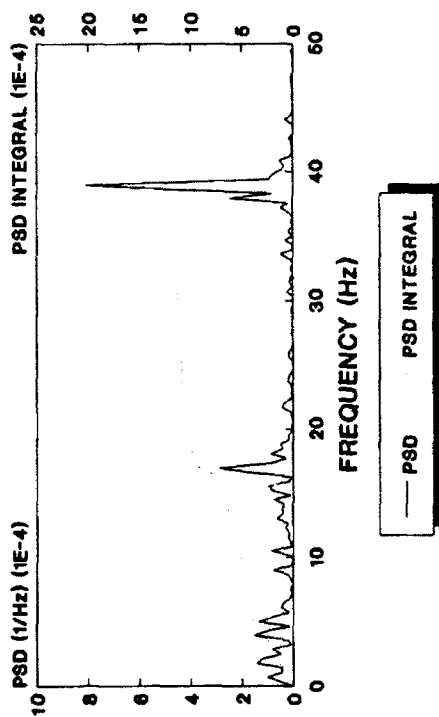
CUBE - HT 8.5 - THETA 30 - AZ 030

# MOMENT COEFF - LATERAL 60 FT/SEC NOMINAL



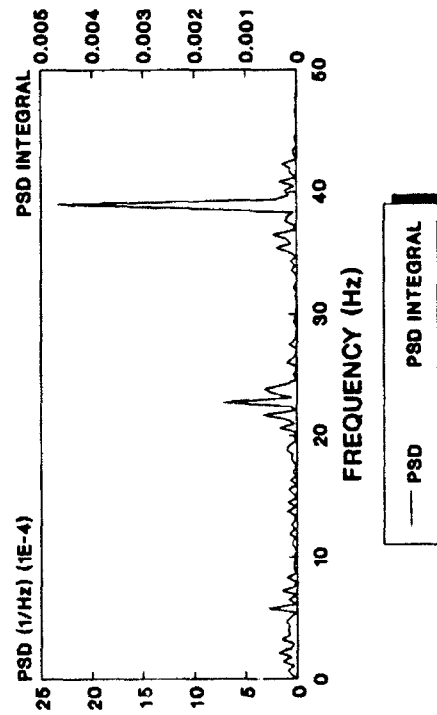
CUBE - HT 8.6 - THETA 30 - AZ 030

# MOMENT COEFF - LATERAL 90 FT/SEC NOMINAL



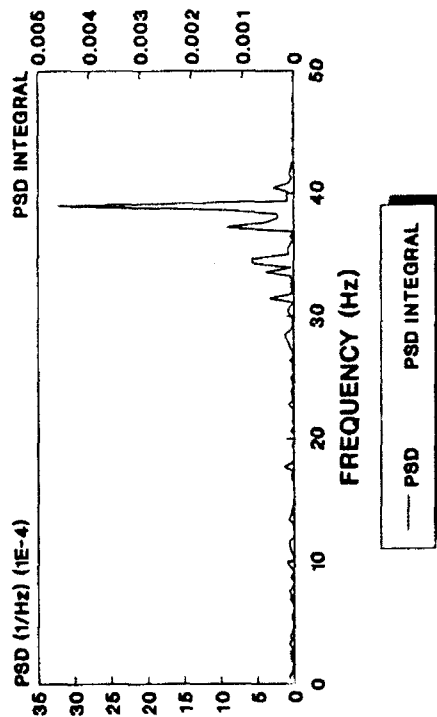
CUBE - HT 8.6 - THETA 30 - AZ 030

# MOMENT COEFF - LATERAL 120 FT/SEC NOMINAL



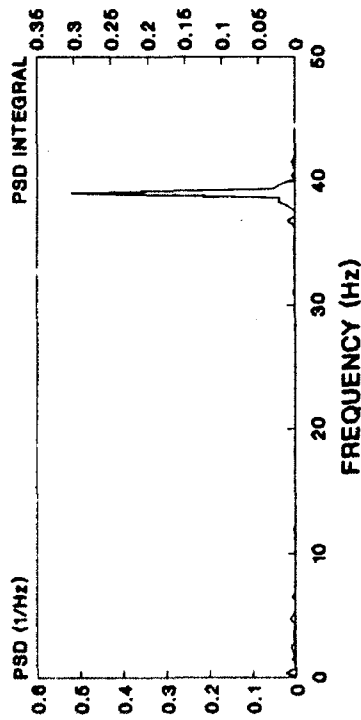
CUBE - HT 8.6 - THETA 30 - AZ 030

# MOMENT COEFF - LATERAL 180 FT/SEC NOMINAL



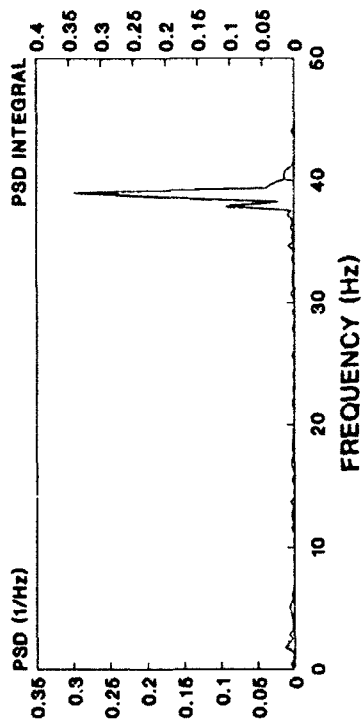
CUBE - HT 8.6 - THETA 30 - AZ 030

# MOMENT COEFF - ROLL 60 FT/SEC NOMINAL



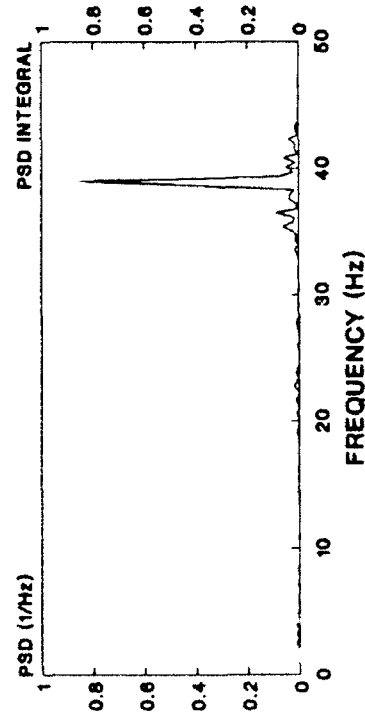
CUBE - HT 8.6 - THETA 30 - AZ 030

# MOMENT COEFF - ROLL 90 FT/SEC NOMINAL



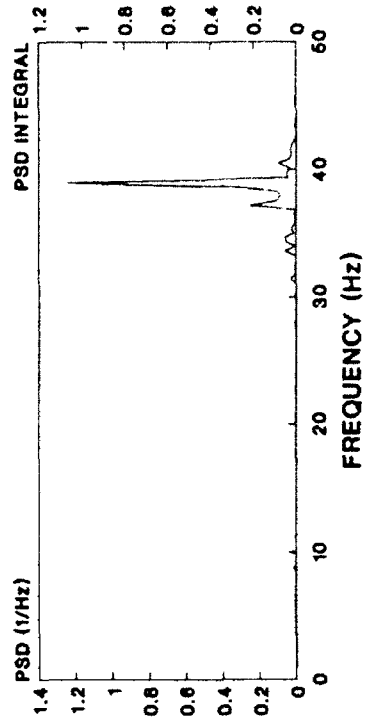
CUBE - HT 8.6 - THETA 30 - AZ 030

# MOMENT COEFF - ROLL 120 FT/SEC NOMINAL



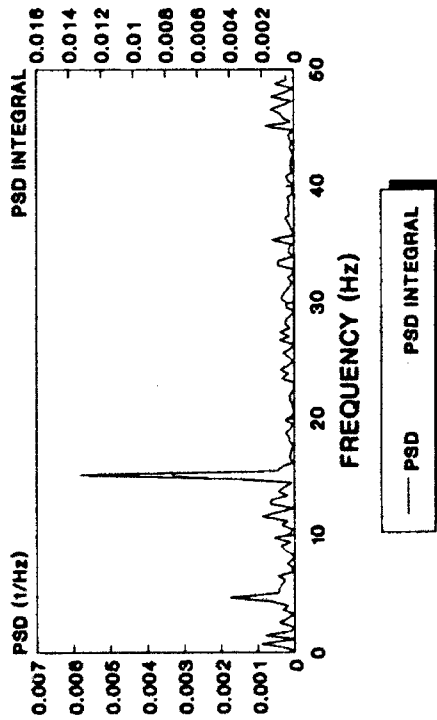
CUBE - HT 8.6 - THETA 30 - AZ 030

# MOMENT COEFF - ROLL 180 FT/SEC NOMINAL



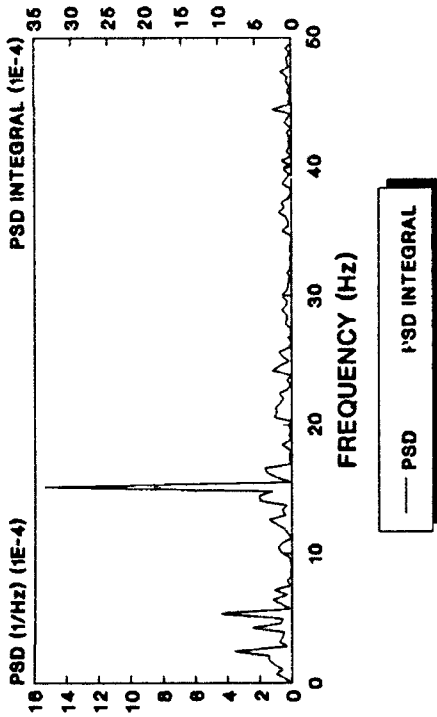
CUBE - HT 8.6 - THETA 30 - AZ 030

# FORCE COEFF - NORMAL 60 FT/SEC NOMINAL



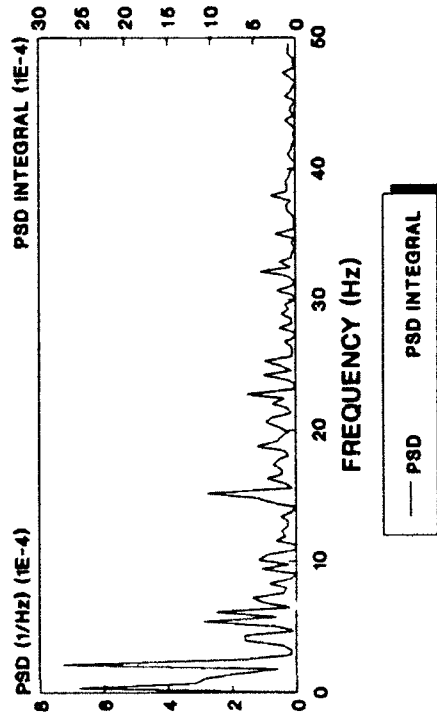
CUBE - HT 8.6 - THETA 30 - AZ 045

# FORCE COEFF - NORMAL 90 FT/SEC NOMINAL



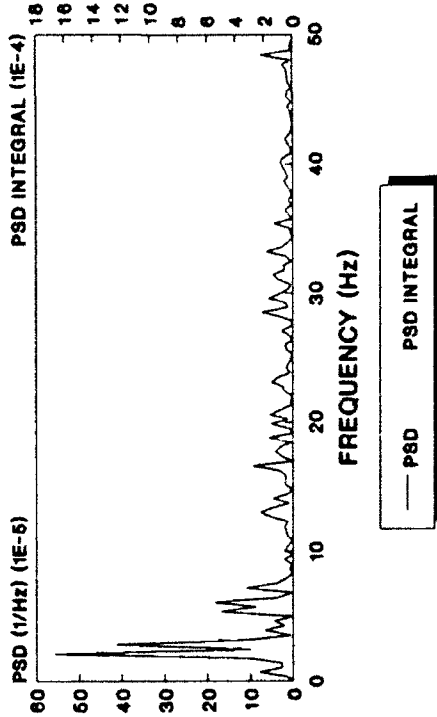
CUBE - HT 8.6 - THETA 30 - AZ 046

# FORCE COEFF - NORMAL 120 FT/SEC NOMINAL



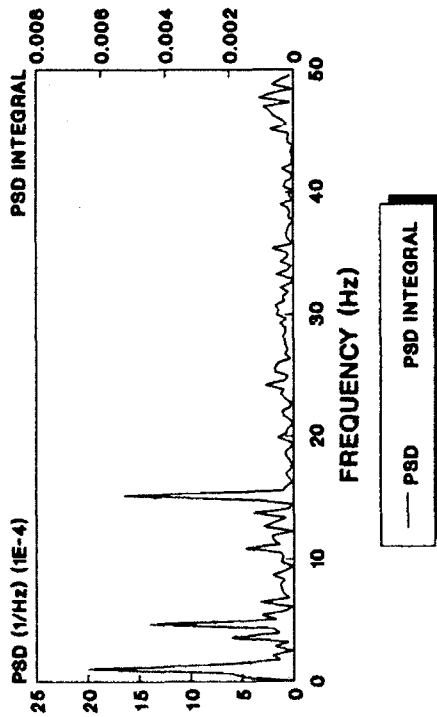
CUBE - HT 8.6 - THETA 30 - AZ 045

# FORCE COEFF - NORMAL 180 FT/SEC NOMINAL



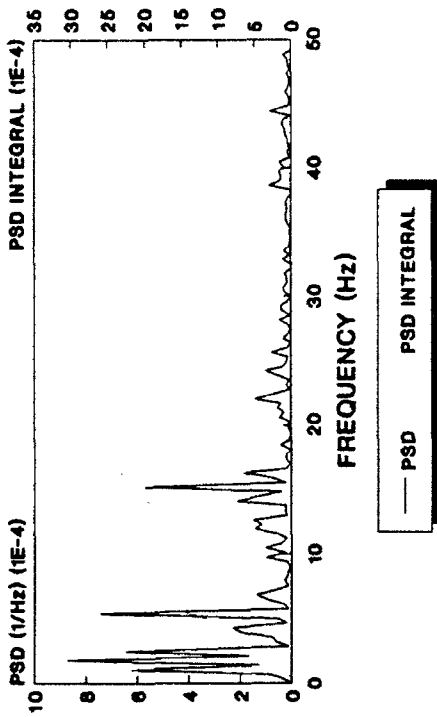
CUBE - HT 8.6 - THETA 30 - AZ 046

# MOMENT COEFF - NORMAL 60 FT/SEC NOMINAL



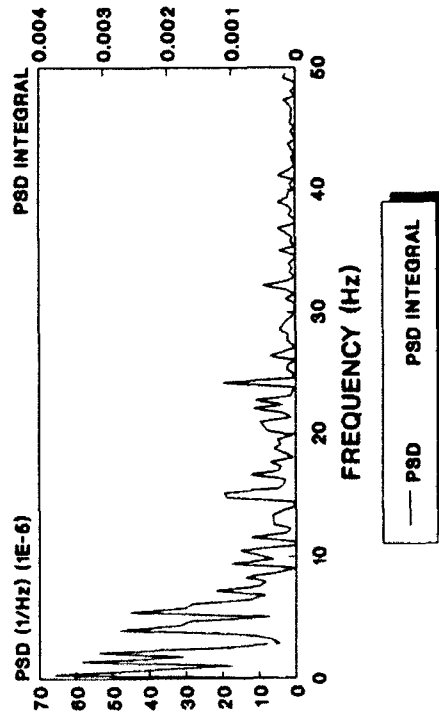
CUBE - HT 8.6 - THETA 30 - AZ 046

# MOMENT COEFF - NORMAL 90 FT/SEC NOMINAL



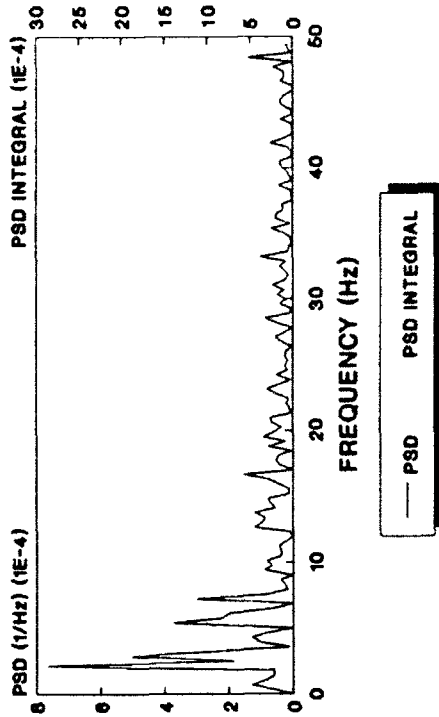
CUBE - HT 8.6 - THETA 30 - AZ 046

# MOMENT COEFF - NORMAL 120 FT/SEC NOMINAL



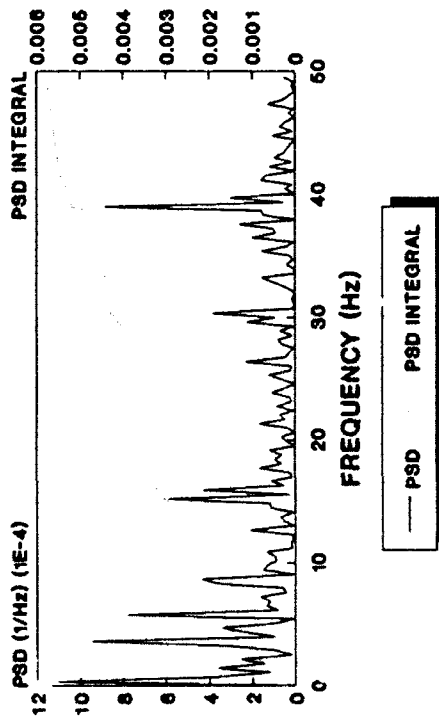
CUBE - HT 8.6 - THETA 30 - AZ 046

# MOMENT COEFF - NORMAL 180 FT/SEC NOMINAL



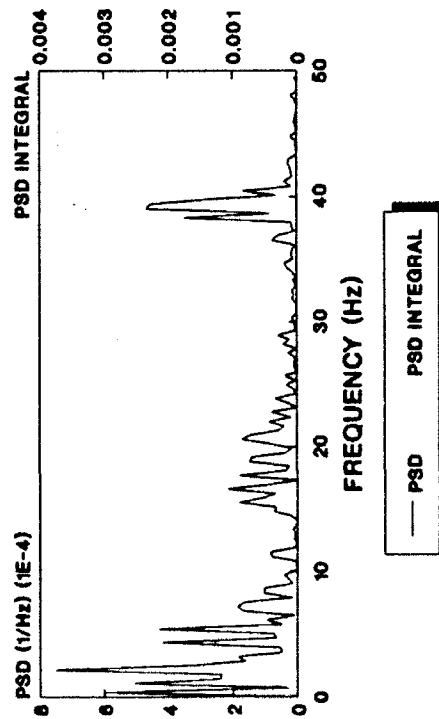
CUBE - HT 8.6 - THETA 30 - AZ 046

# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



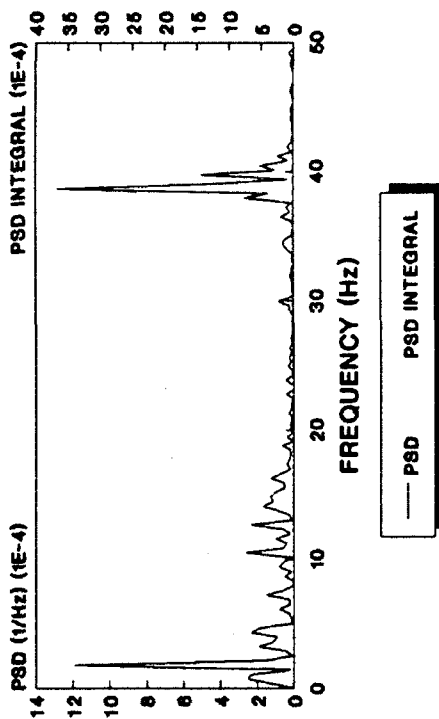
CUBE - HT 8.5 - THETA 30 - AZ 045

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



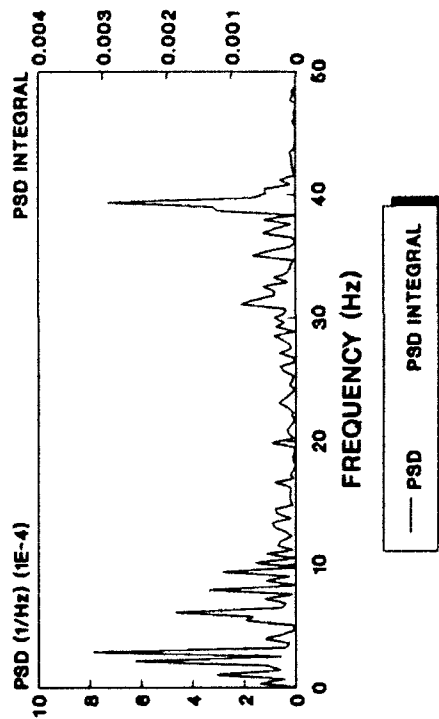
CUBE - HT 8.5 - THETA 30 - AZ 045

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



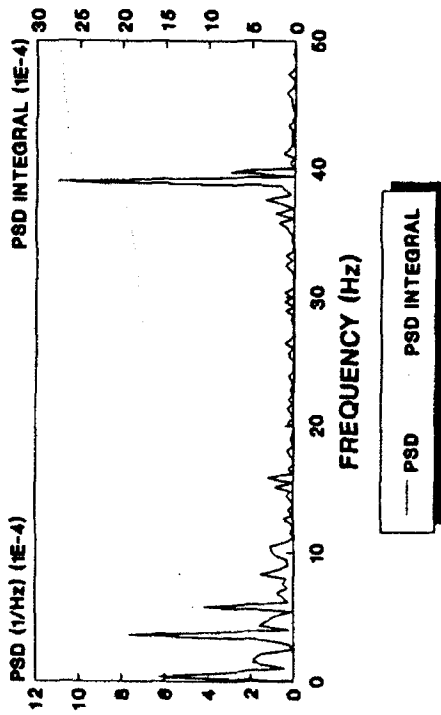
CUBE - HT 8.5 - THETA 30 - AZ 045

# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



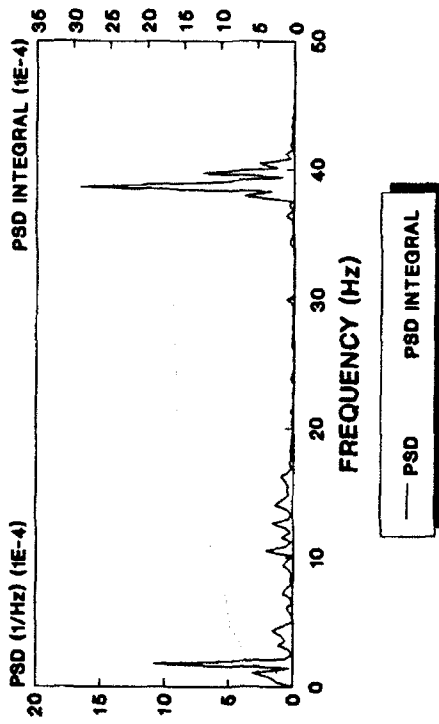
CUBE - HT 8.5 - THETA 30 - AZ 045

# MOMENT COEFF - LATERAL 60 FT/SEC NOMINAL



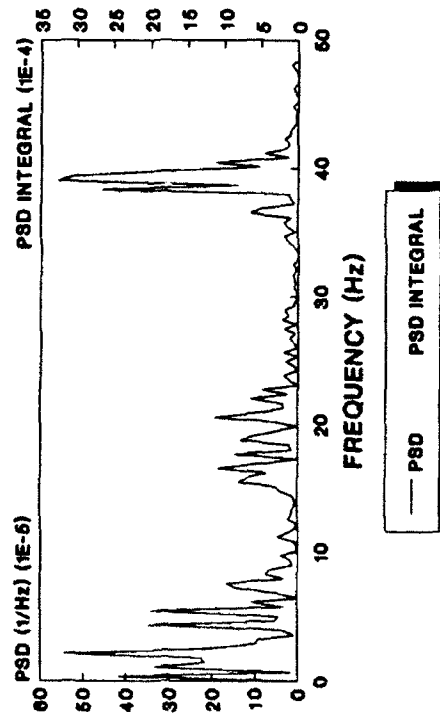
CUBE - HT 8.8 - THETA 30 - AZ 046

# MOMENT COEFF - LATERAL 90 FT/SEC NOMINAL



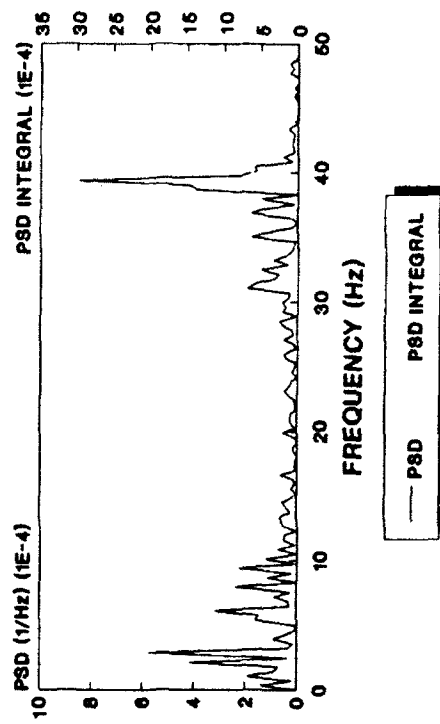
CUBE - HT 8.6 - THETA 30 - AZ 046

# MOMENT COEFF - LATERAL 120 FT/SEC NOMINAL



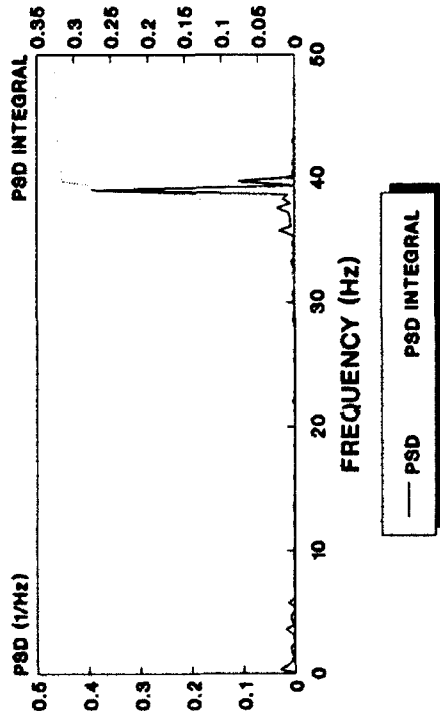
CUBE - HT 8.6 - THETA 30 - AZ 046

# MOMENT COEFF - LATERAL 180 FT/SEC NOMINAL



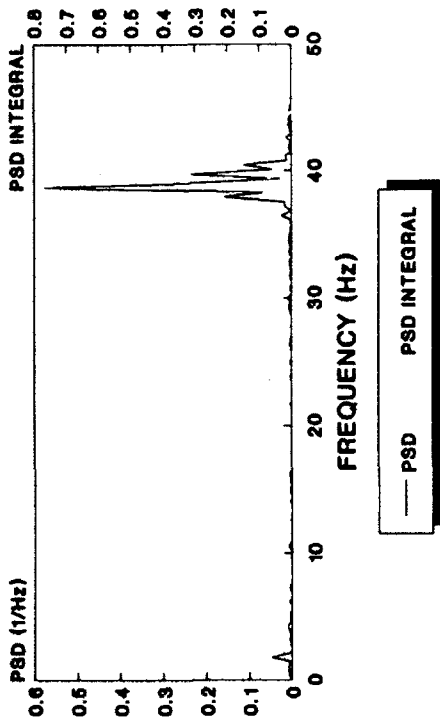
CUBE - HT 8.6 - THETA 30 - AZ 046

# MOMENT COEFF - ROLL 60 FT/SEC NOMINAL



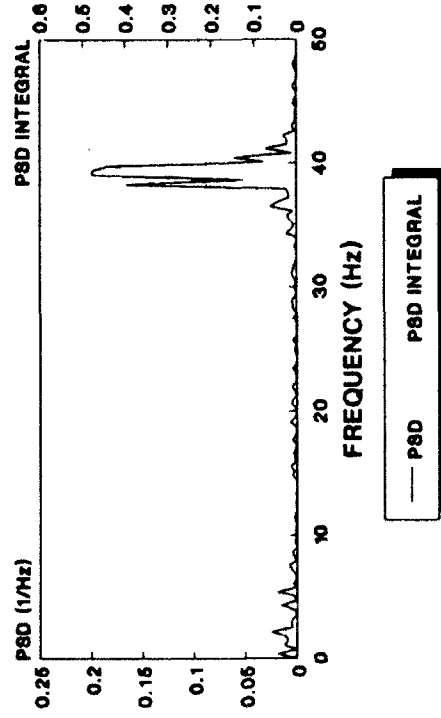
CUBE - HT 8.6 - THETA 30 - AZ 045

# MOMENT COEFF - ROLL 90 FT/SEC NOMINAL



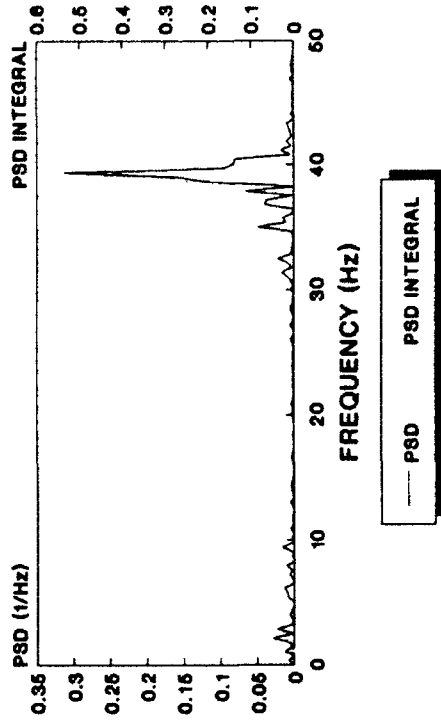
CUBE - HT 8.6 - THETA 30 - AZ 045

# MOMENT COEFF - ROLL 120 FT/SEC NOMINAL



CUBE - HT 8.6 - THETA 30 - AZ 045

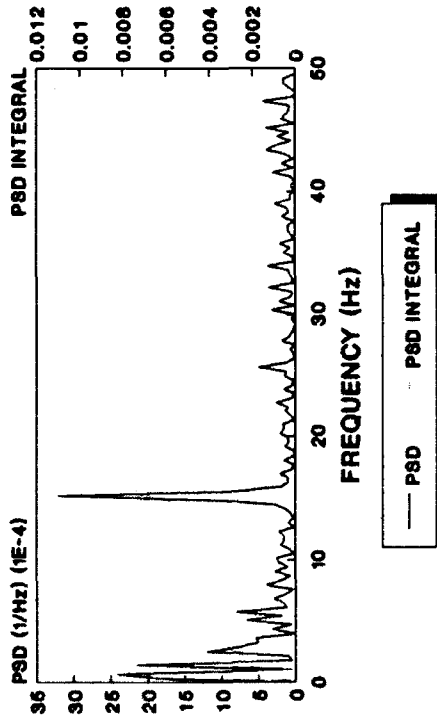
# MOMENT COEFF - ROLL 180 FT/SEC NOMINAL



CUBE - HT 8.6 - THETA 30 - AZ 045

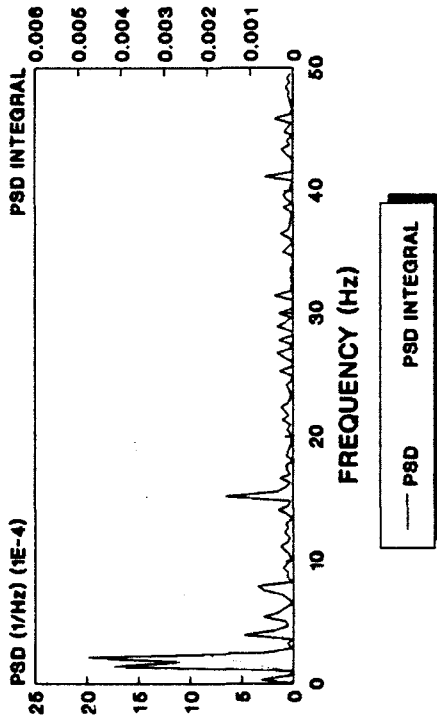


# FORCE COEFF - NORMAL 60 FT/SEC NOMINAL



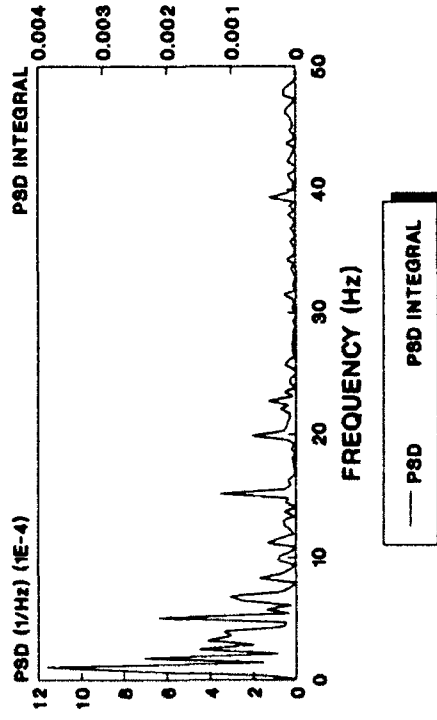
CUBE - HT 8.6 - THETA 30 - AZ 060

# FORCE COEFF - NORMAL 90 FT/SEC NOMINAL



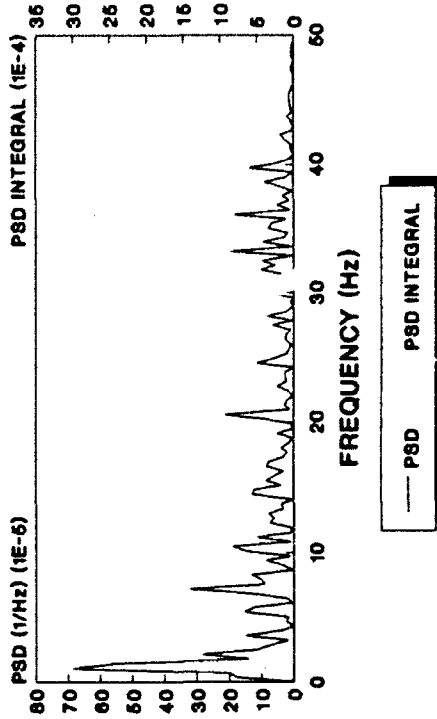
CUBE - HT 8.6 - THETA 30 - AZ 060

# FORCE COEFF - NORMAL 120 FT/SEC NOMINAL



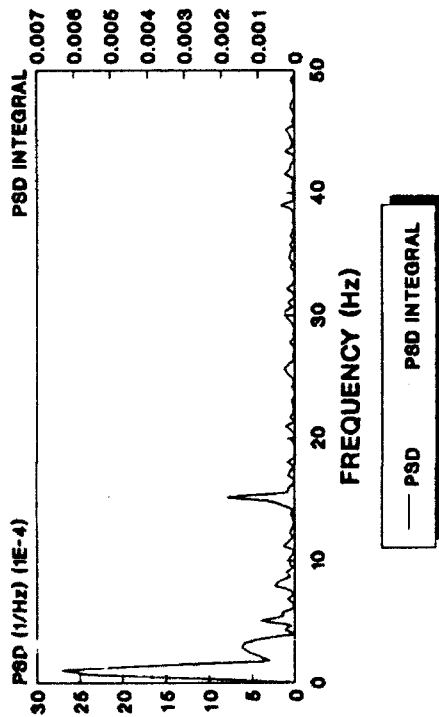
CUBE - HT 8.6 - THETA 30 - AZ 060

# FORCE COEFF - NORMAL 180 FT/SEC NOMINAL



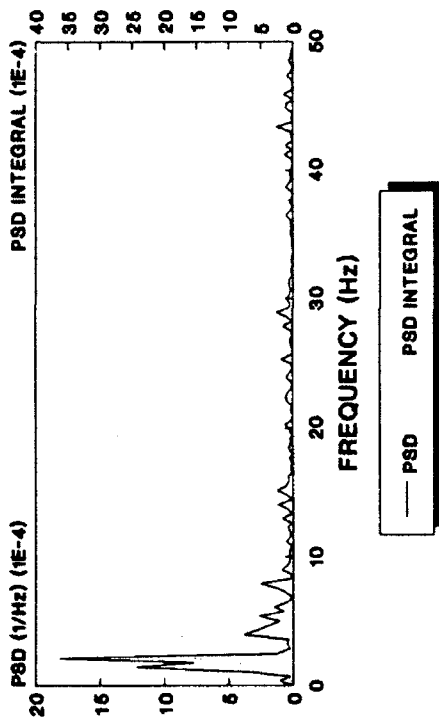
CUBE - HT 8.6 - THETA 30 - AZ 060

# MOMENT COEFF - NORMAL 60 FT/SEC NOMINAL



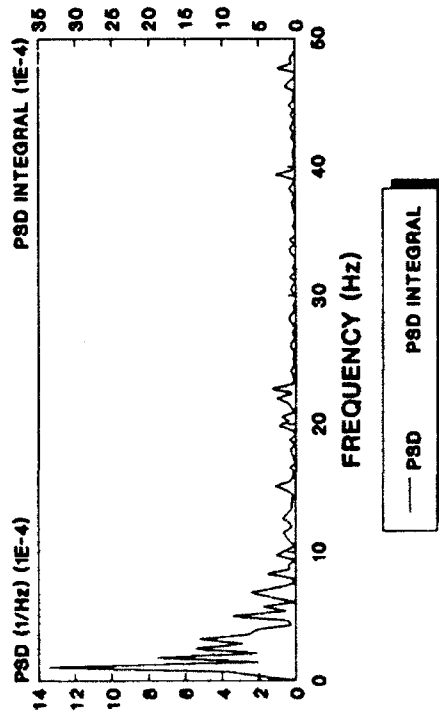
CUBE - HT 8.6 - THETA 30 - AZ 060

# MOMENT COEFF - NORMAL 90 FT/SEC NOMINAL



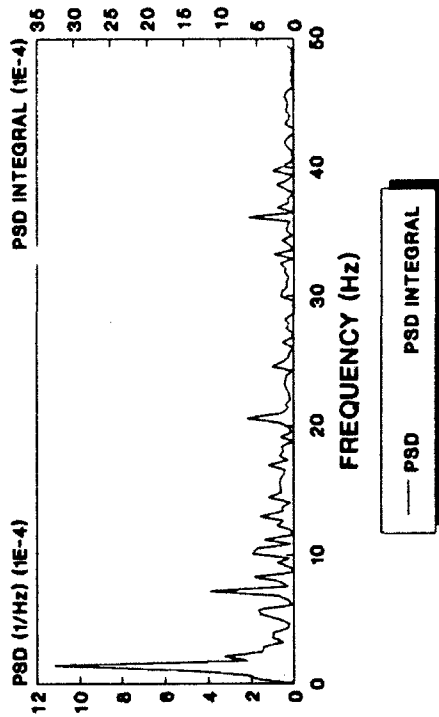
CUBE - HT 8.6 - THETA 30 - AZ 060

# MOMENT COEFF - NORMAL 120 FT/SEC NOMINAL



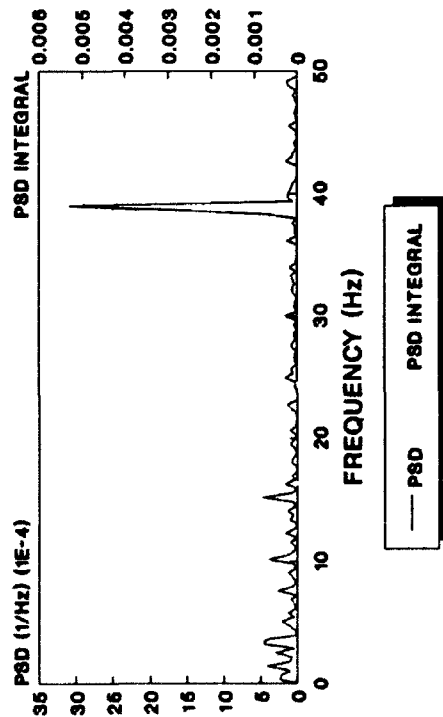
CUBE - HT 8.6 - THETA 30 - AZ 060

# MOMENT COEFF - NORMAL 180 FT/SEC NOMINAL



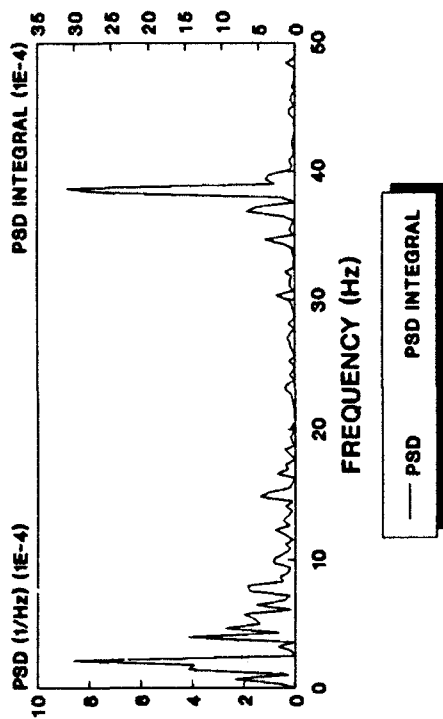
CUBE - HT 8.6 - THETA 30 - AZ 060

# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



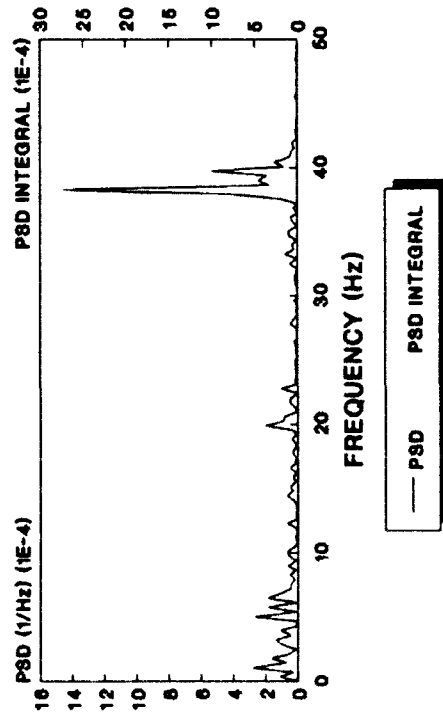
CUBE - HT 8.6 - THETA 30 - AZ 060

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



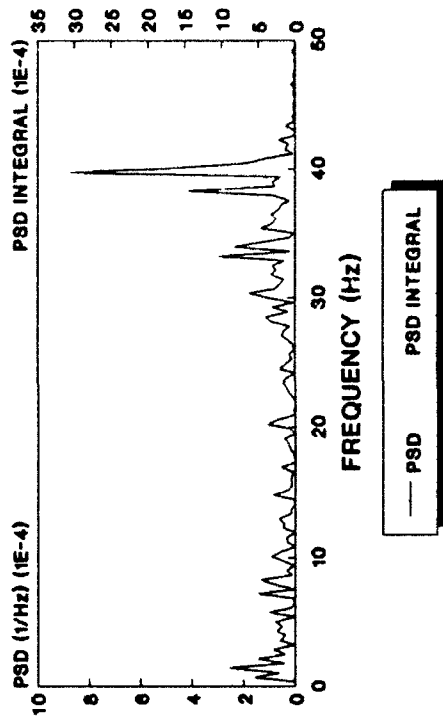
CUBE - HT 8.6 - THETA 30 - AZ 060

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



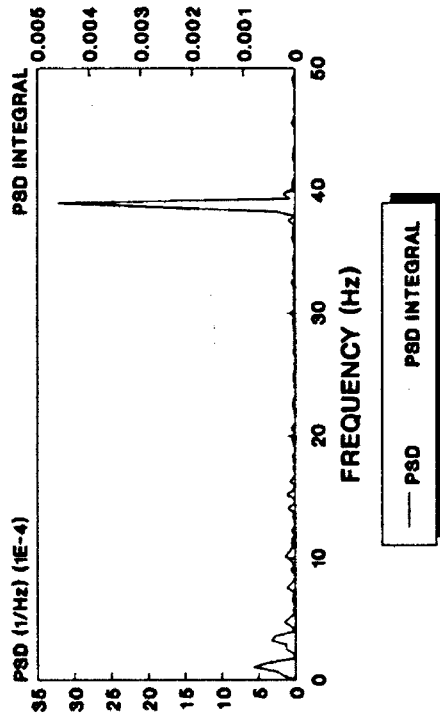
CUBE - HT 8.6 - THETA 30 - AZ 060

# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



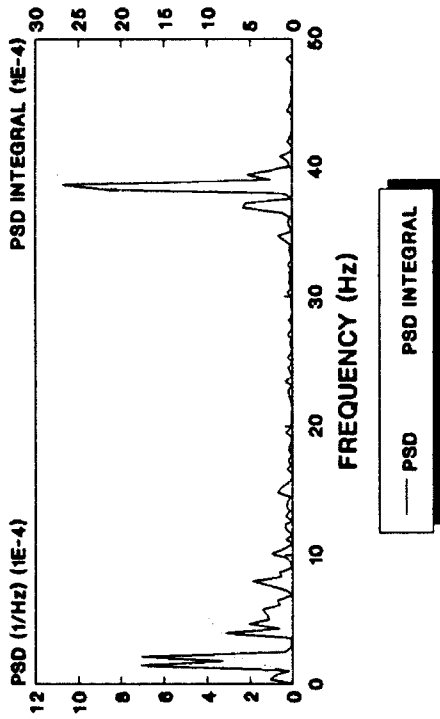
CUBE - HT 8.6 - THETA 30 - AZ 060

# MOMENT COEFF - LATERAL 60 FT/SEC NOMINAL



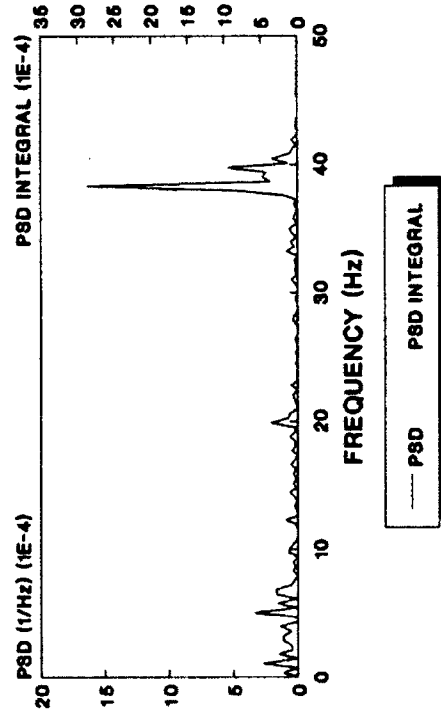
CUBE - HT 8.6 - THETA 30 - AZ 060

# MOMENT COEFF - LATERAL 90 FT/SEC NOMINAL



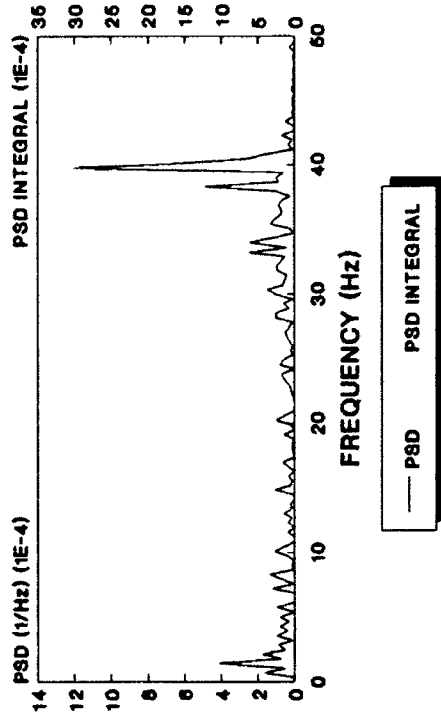
CUBE - HT 8.6 - THETA 30 - AZ 060

# MOMENT COEFF - LATERAL 120 FT/SEC NOMINAL



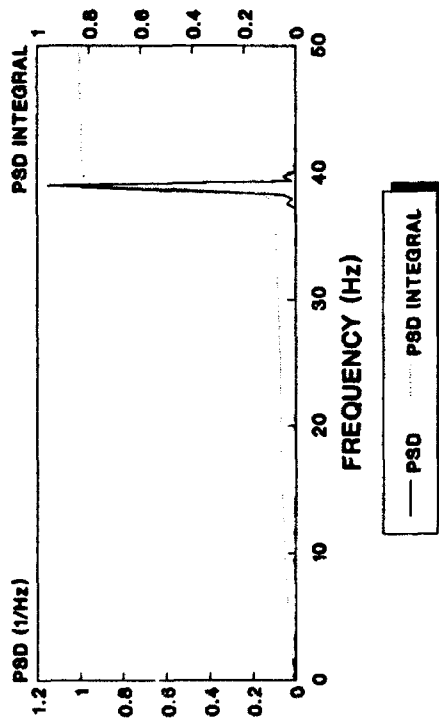
CUBE - HT 8.6 - THETA 30 - AZ 060

# MOMENT COEFF - LATERAL 180 FT/SEC NOMINAL



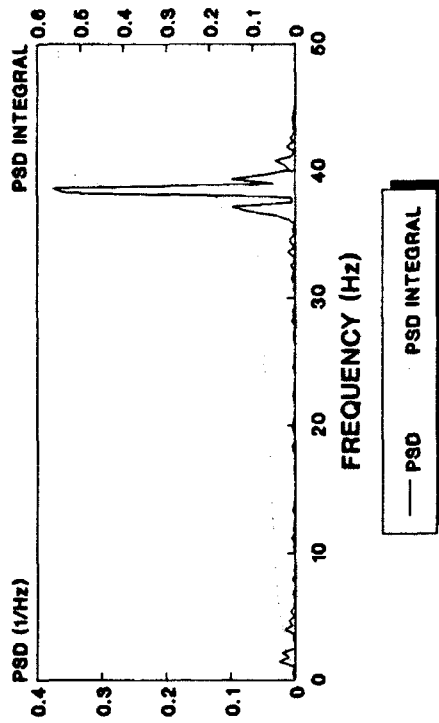
CUBE - HT 8.6 - THETA 30 - AZ 060

# MOMENT COEFF - ROLL 60 FT/SEC NOMINAL



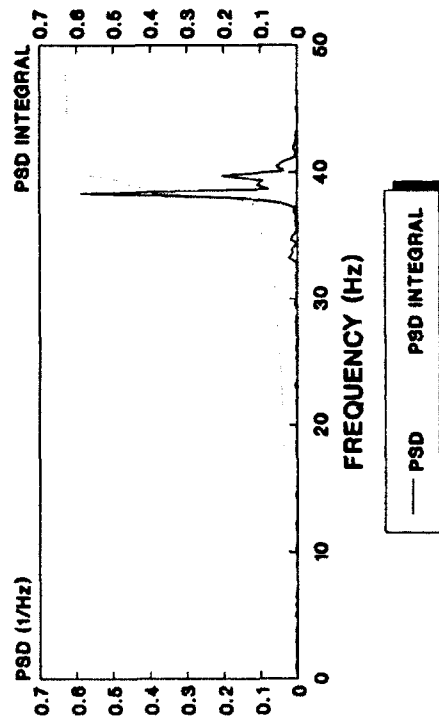
CUBE - HT 8.6 - THETA 30 - AZ 060

# MOMENT COEFF - ROLL 90 FT/SEC NOMINAL



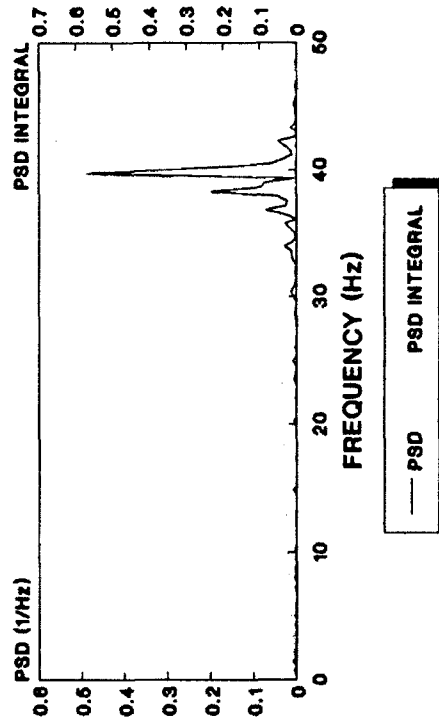
CUBE - HT 8.6 - THETA 30 - AZ 060

# MOMENT COEFF - ROLL 120 FT/SEC NOMINAL



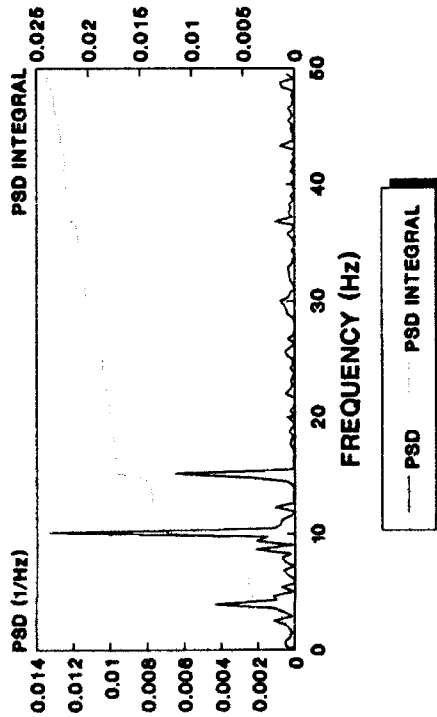
CUBE - HT 8.6 - THETA 30 - AZ 060

# MOMENT COEFF - ROLL 180 FT/SEC NOMINAL



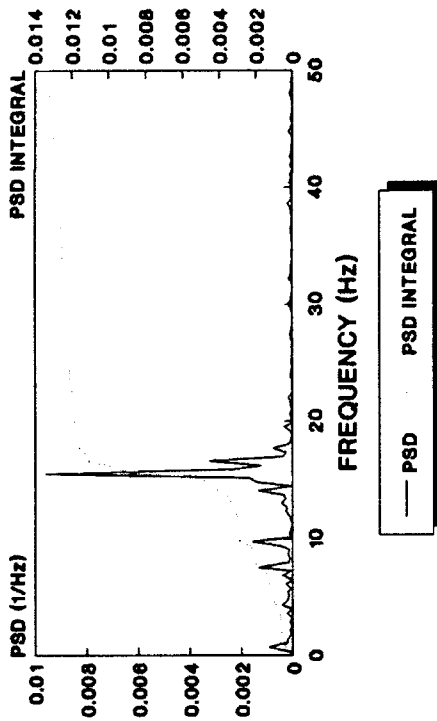
CUBE - HT 8.6 - THETA 30 - AZ 060

# FORCE COEFF - NORMAL 60 FT/SEC NOMINAL



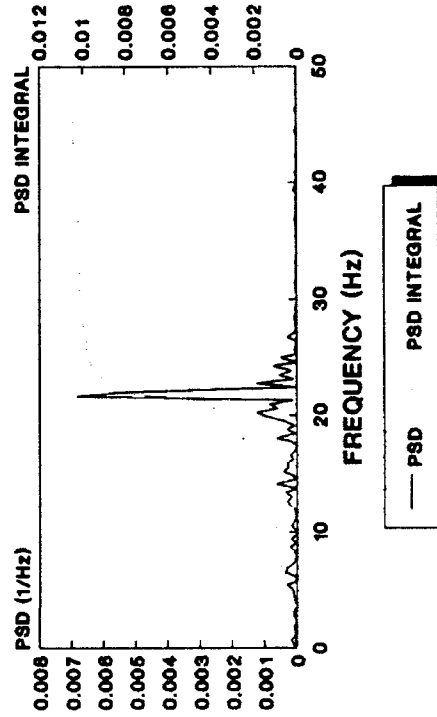
CUBE - HT 8.6 - THETA 30 - AZ 090

# FORCE COEFF - NORMAL 90 FT/SEC NOMINAL



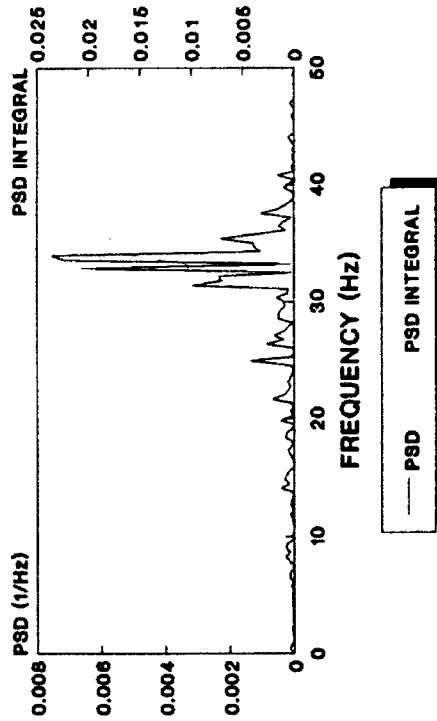
CUBE - HT 8.6 - THETA 30 - AZ 090

# FORCE COEFF - NORMAL 120 FT/SEC NOMINAL



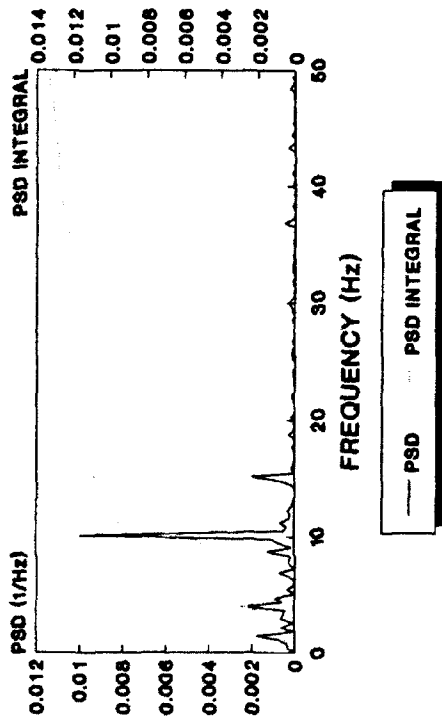
CUBE - HT 8.6 - THETA 30 - AZ 090

# FORCE COEFF - NORMAL 180 FT/SEC NOMINAL



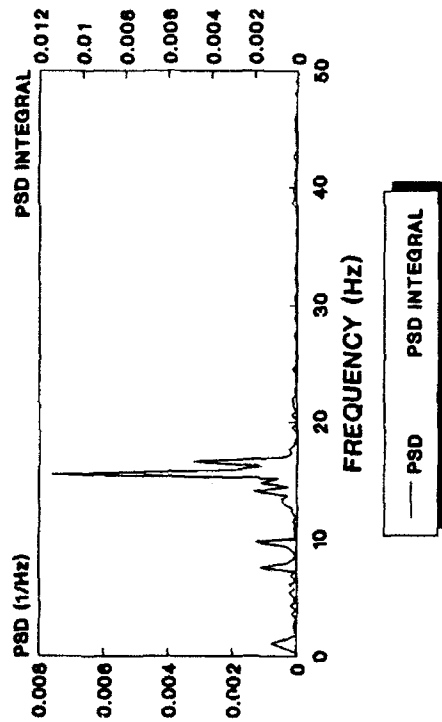
CUBE - HT 8.6 - THETA 30 - AZ 090

# MOMENT COEFF - NORMAL 60 FT/SEC NOMINAL



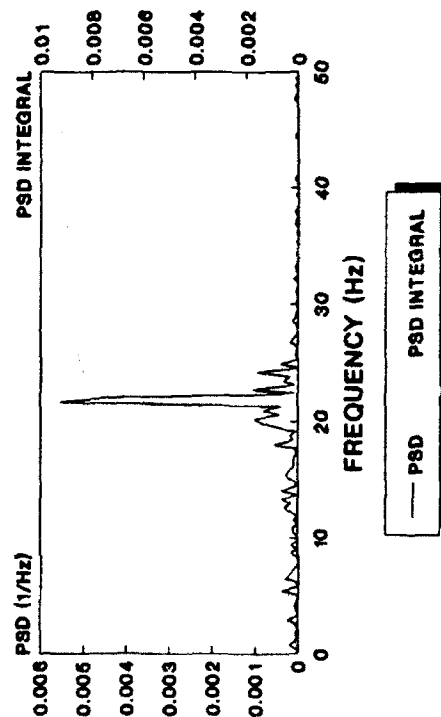
CUBE - HT 8.6 - THETA 30 - AZ 090

# MOMENT COEFF - NORMAL 90 FT/SEC NOMINAL



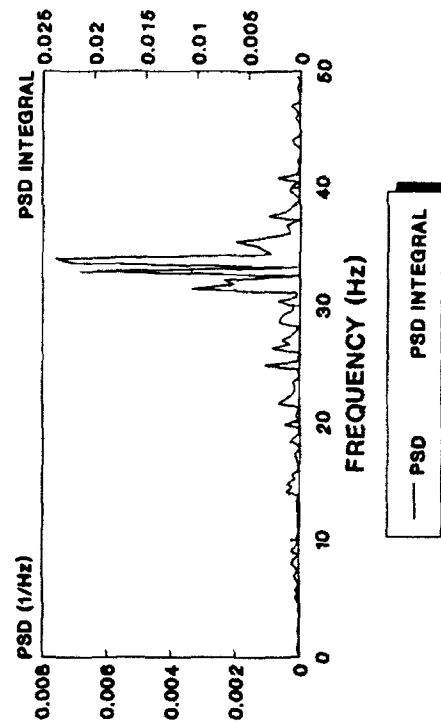
CUBE - HT 8.6 - THETA 30 - AZ 090

# MOMENT COEFF - NORMAL 120 FT/SEC NOMINAL



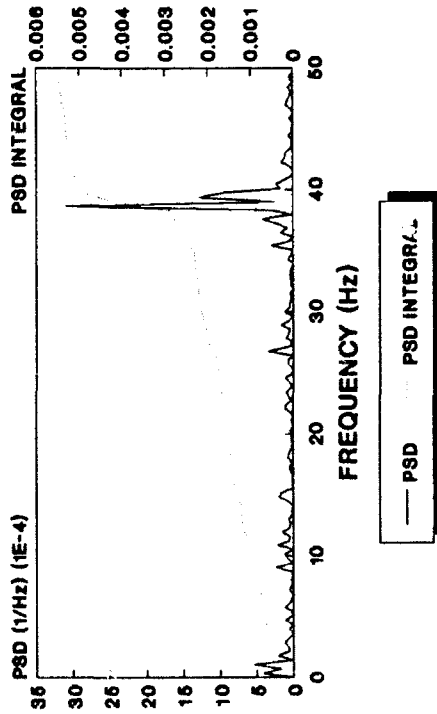
CUBE - HT 8.6 - THETA 30 - AZ 090

# MOMENT COEFF - NORMAL 180 FT/SEC NOMINAL



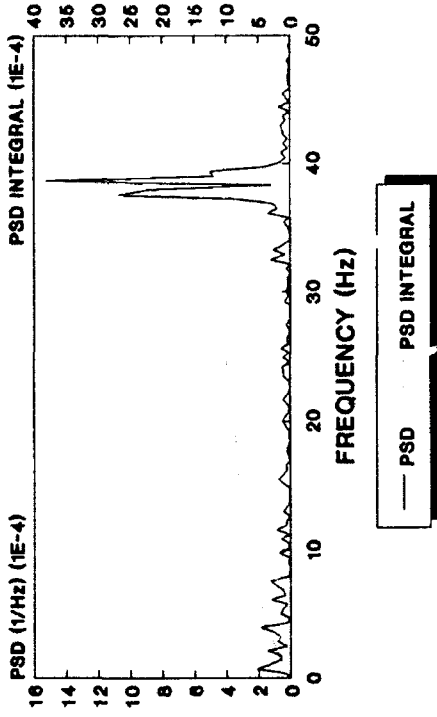
CUBE - HT 8.6 - THETA 30 - AZ 090

# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



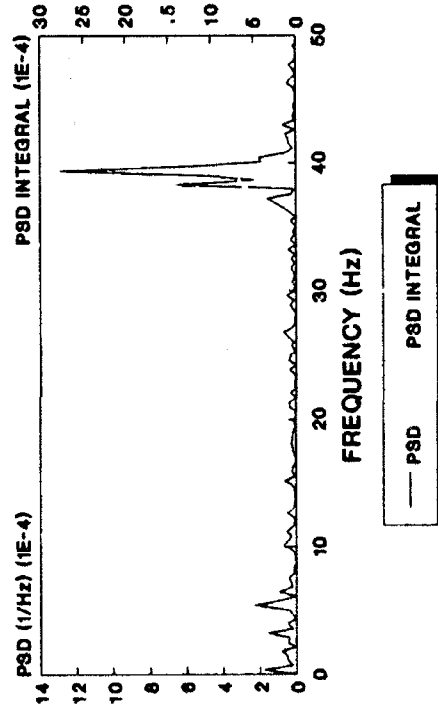
CUBE - HT 8.6 - THETA 30 - AZ 090

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



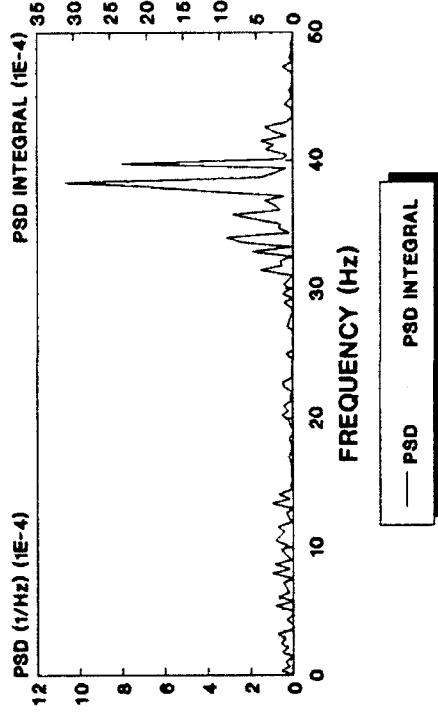
CUBE - HT 8.6 - THETA 30 - AZ 090

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



CUBE - HT 8.6 - THETA 30 - AZ 090

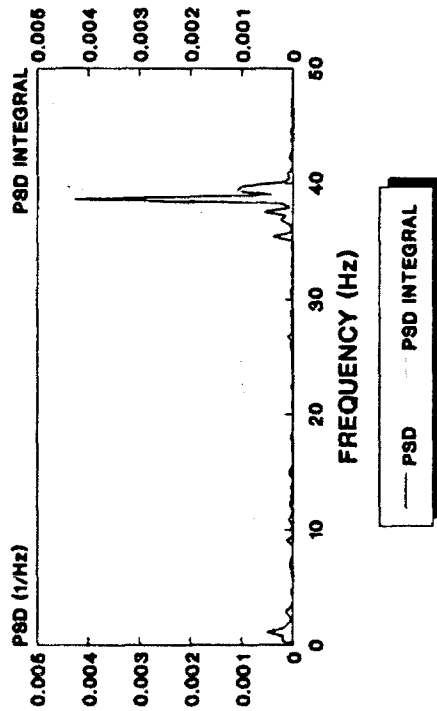
# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



CUBE - HT 8.6 - THETA 30 - AZ 090

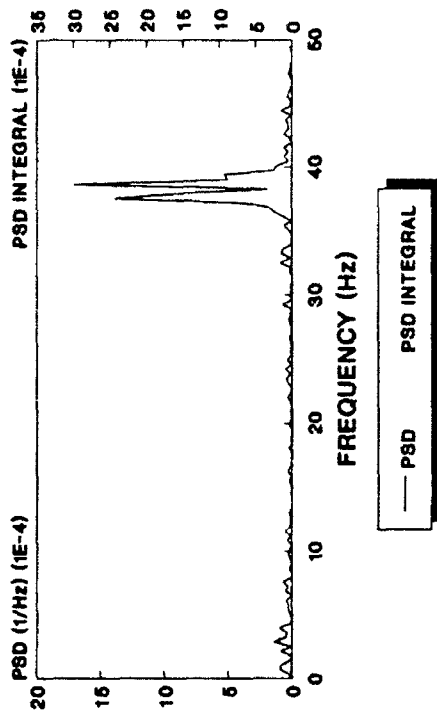


# MOMENT COEFF - LATERAL 60 FT/SEC NOMINAL



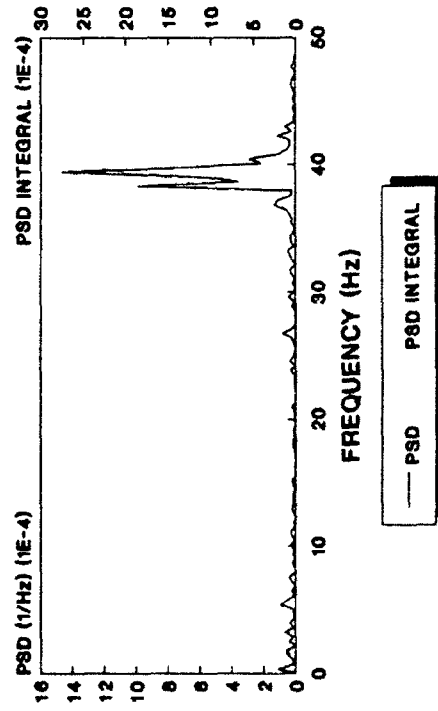
CUBE - HT 8.5 - THETA 30 - AZ 090

# MOMENT COEFF - LATERAL 90 FT/SEC NOMINAL



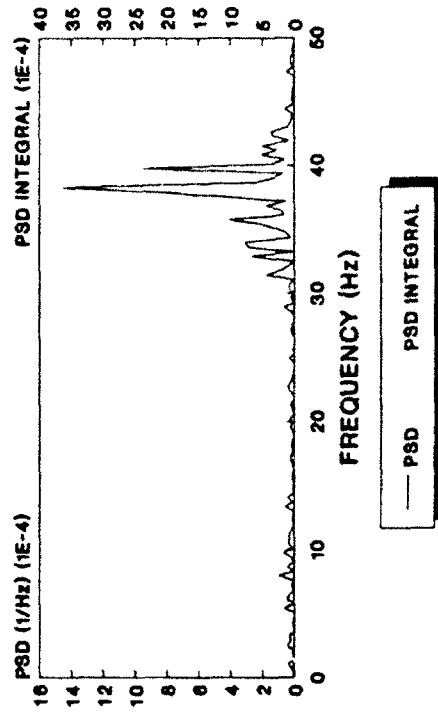
CUBE - HT 8.5 - THETA 30 - AZ 090

# MOMENT COEFF - LATERAL 120 FT/SEC NOMINAL



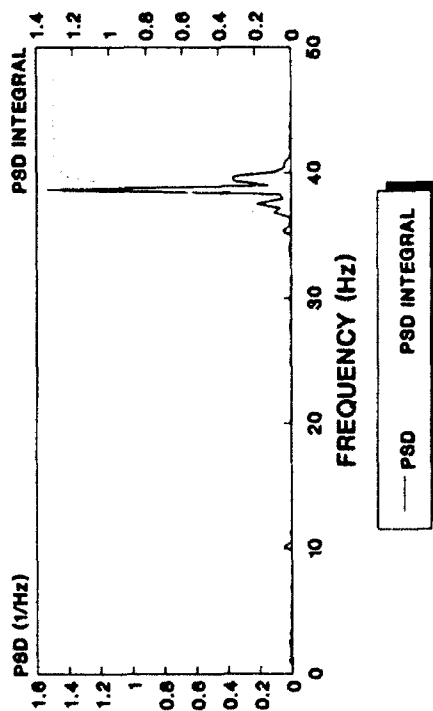
CUBE - HT 8.5 - THETA 30 - AZ 090

# MOMENT COEFF - LATERAL 180 FT/SEC NOMINAL



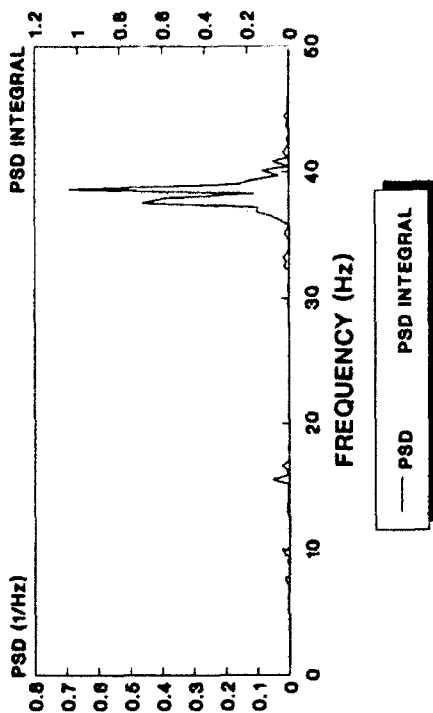
CUBE - HT 8.5 - THETA 30 - AZ 090

# MOMENT COEFF - ROLL 60 FT/SEC NOMINAL



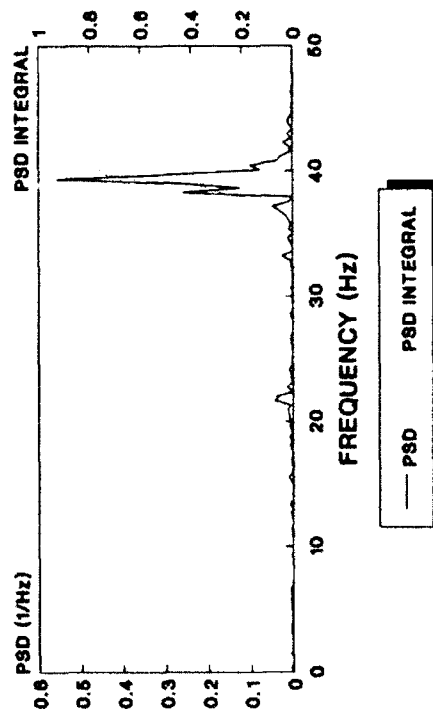
CUBE - HT 8.6 - THETA 30 - AZ 090

# MOMENT COEFF - ROLL 90 FT/SEC NOMINAL



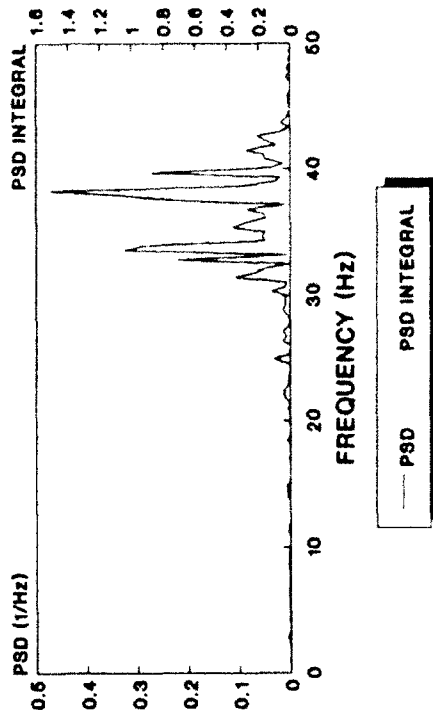
CUBE - HT 8.6 - THETA 30 - AZ 090

# MOMENT COEFF - ROLL 120 FT/SEC NOMINAL



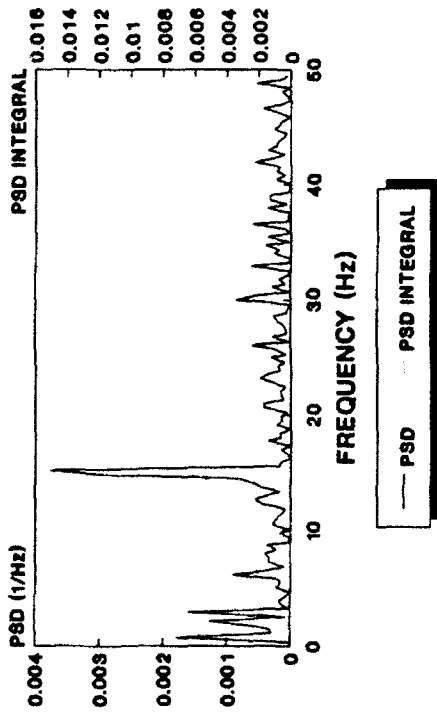
CUBE - HT 8.6 - THETA 30 - AZ 090

# MOMENT COEFF - ROLL 180 FT/SEC NOMINAL



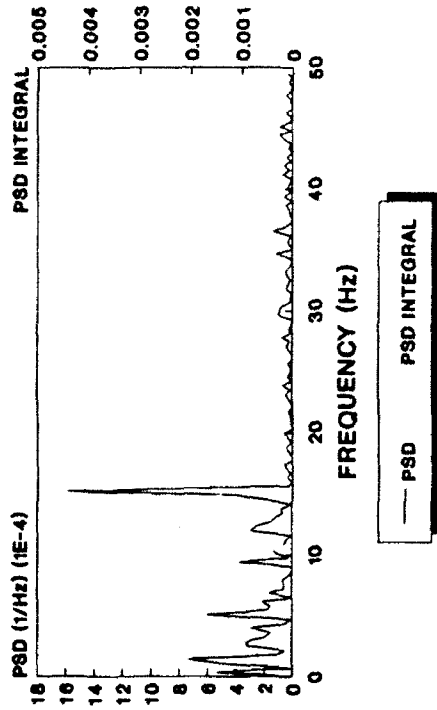
CUBE - HT 8.6 - THETA 30 - AZ 090

# FORCE COEFF - NORMAL 60 FT/SEC NOMINAL



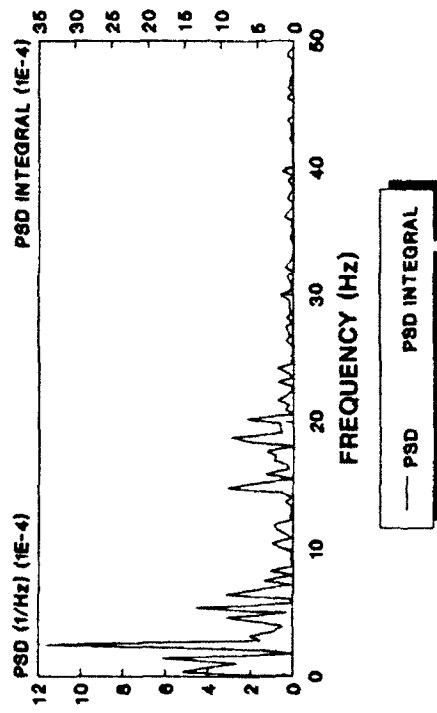
CUBE - HT 8.8 - THETA 30 - AZ 120

# FORCE COEFF - NORMAL 90 FT/SEC NOMINAL



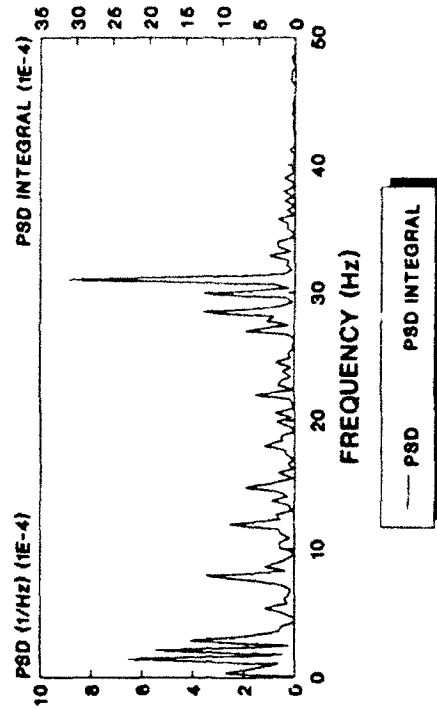
CUBE - HT 8.8 - THETA 30 - AZ 120

# FORCE COEFF - NORMAL 120 FT/SEC NOMINAL



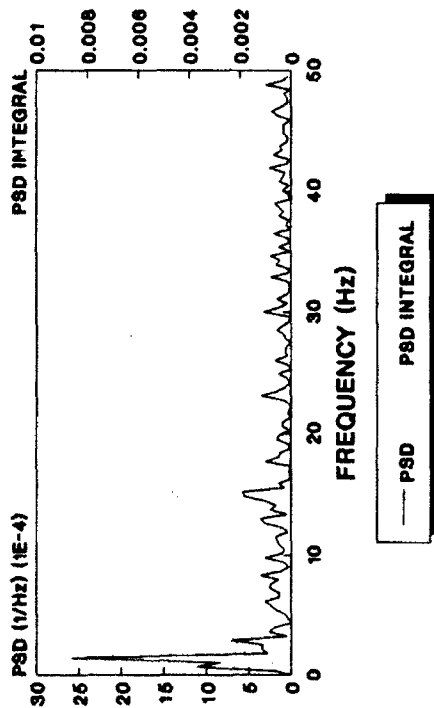
CUBE - HT 8.8 - THETA 30 - AZ 120

# FORCE COEFF - NORMAL 180 FT/SEC NOMINAL



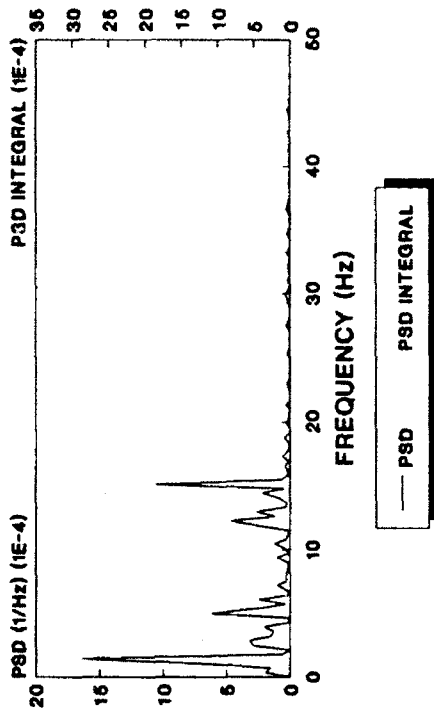
CUBE - HT 8.8 - THETA 30 - AZ 120

# MOMENT COEFF - NORMAL 60 FT/SEC NOMINAL



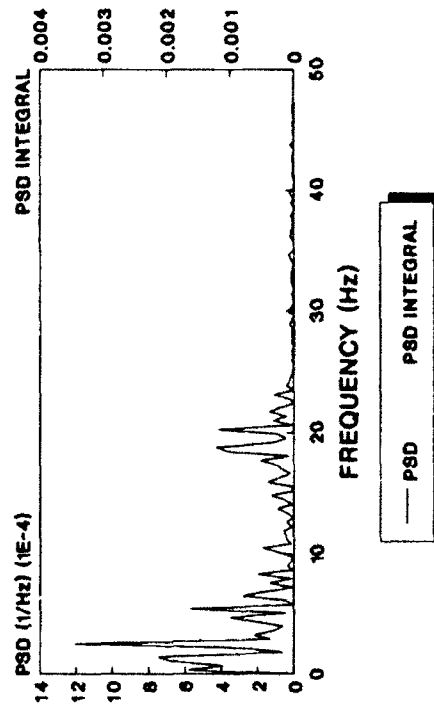
CUBE - HT 8.6 - THETA 30 - AZ 120

# MOMENT COEFF - NORMAL 90 FT/SEC NOMINAL



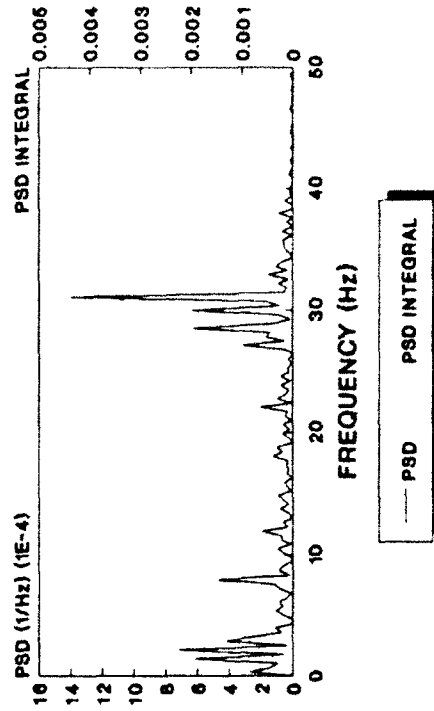
CUBE - HT 8.6 - THETA 30 - AZ 120

# MOMENT COEFF - NORMAL 120 FT/SEC NOMINAL



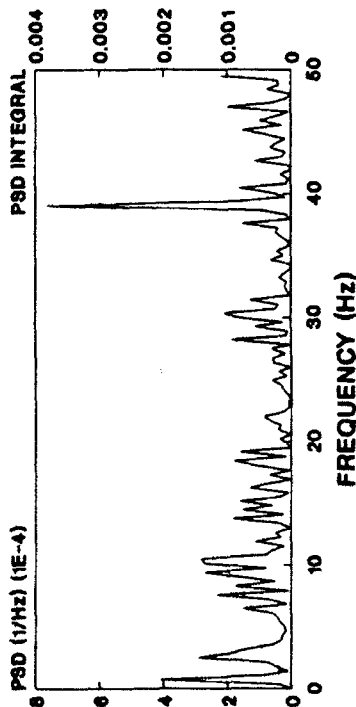
CUBE - HT 8.6 - THETA 30 - AZ 120

# MOMENT COEFF - NORMAL 180 FT/SEC NOMINAL



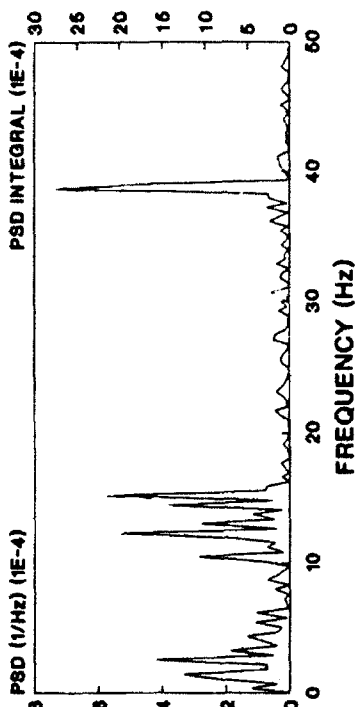
CUBE - HT 8.6 - THETA 30 - AZ 120

# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



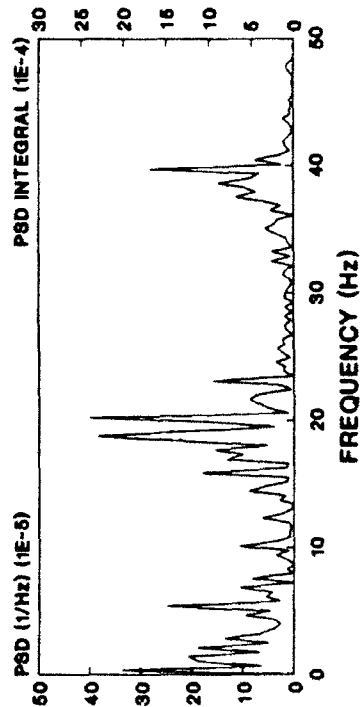
CUBE - HT 8.5 - THETA 30 - AZ 120

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



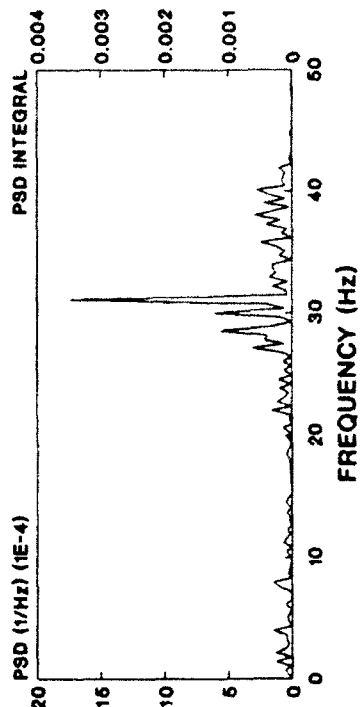
CUBE - HT 8.5 - THETA 30 - AZ 120

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



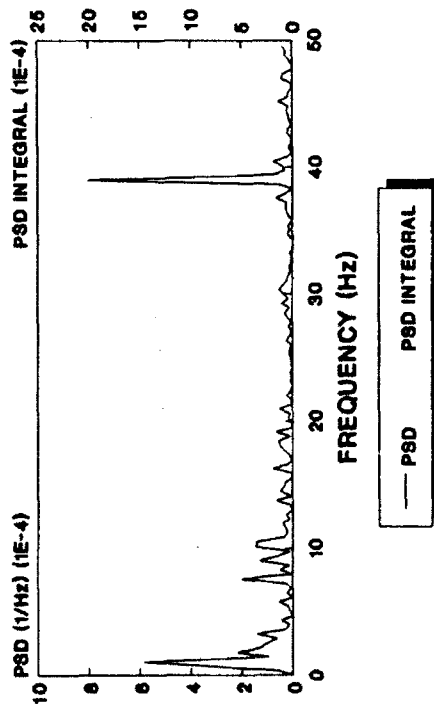
CUBE - HT 8.5 - THETA 30 - AZ 120

# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



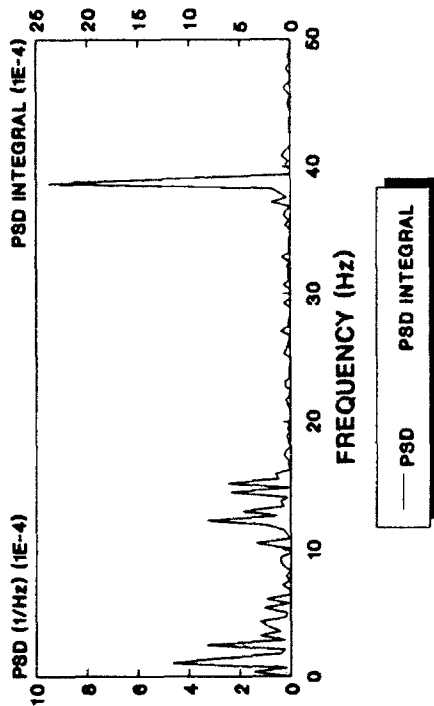
CUBE - HT 8.5 - THETA 30 - AZ 120

# MOMENT COEFF - LATERAL 60 FT/SEC NOMINAL



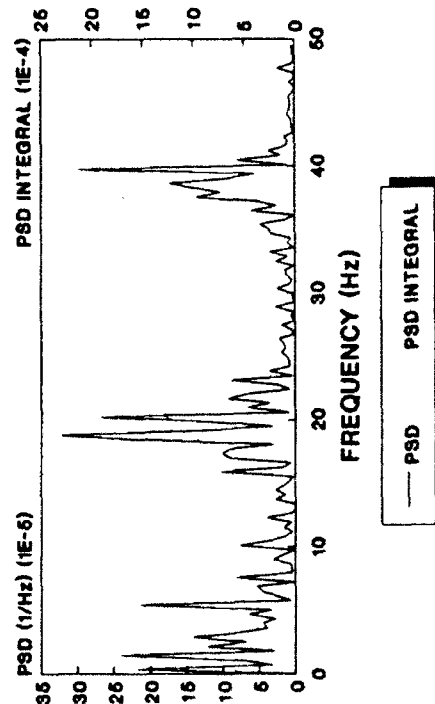
CUBE - HT 8.6 - THETA 30 - AZ 120

# MOMENT COEFF - LATERAL 90 FT/SEC NOMINAL



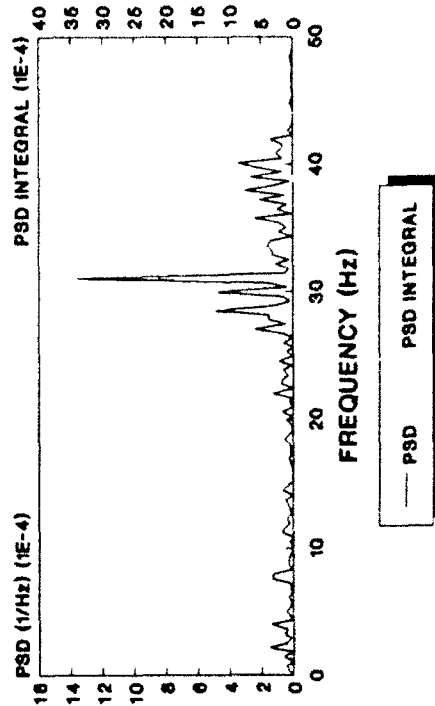
CUBE - HT 8.6 - THETA 30 - AZ 120

# MOMENT COEFF - LATERAL 120 FT/SEC NOMINAL



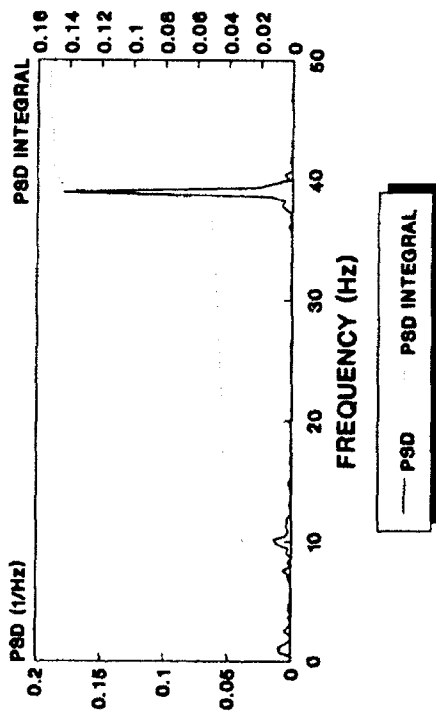
CUBE - HT 8.6 - THETA 30 - AZ 120

# MOMENT COEFF - LATERAL 180 FT/SEC NOMINAL



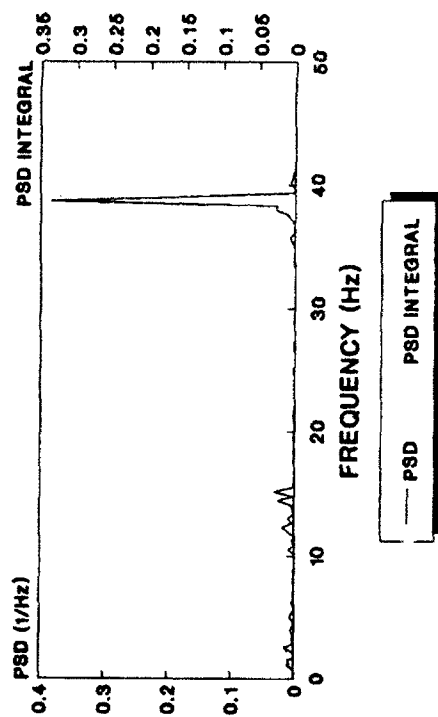
CUBE - HT 8.6 - THETA 30 - AZ 120

# MOMENT COEFF - ROLL 60 FT/SEC NOMINAL



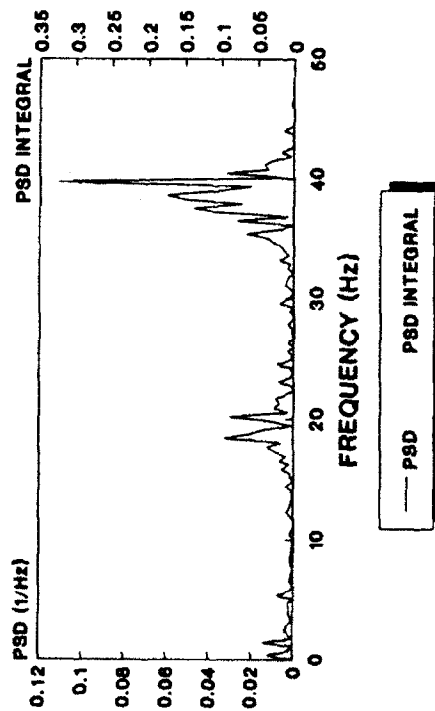
CUBE - HT 8.6 - THETA 30 - AZ 120

# MOMENT COEFF - ROLL 90 FT/SEC NOMINAL



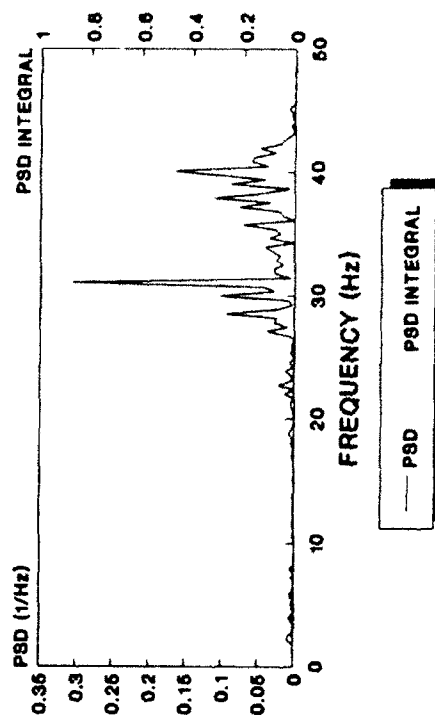
CUBE - HT 8.6 - THETA 30 - AZ 120

# MOMENT COEFF - ROLL 120 FT/SEC NOMINAL



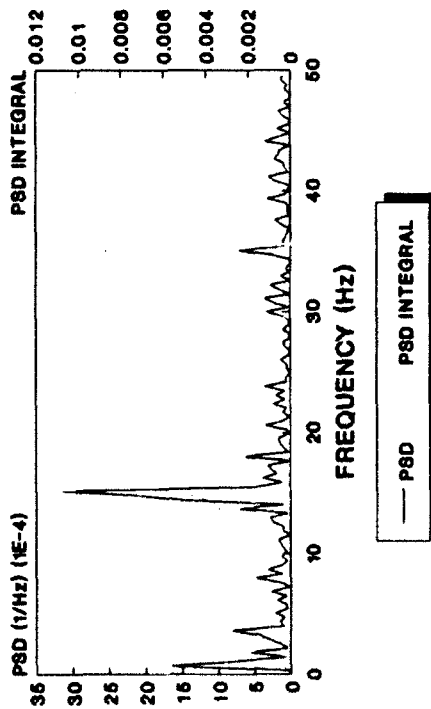
CUBE - HT 8.6 - THETA 30 - AZ 120

# MOMENT COEFF - ROLL 180 FT/SEC NOMINAL



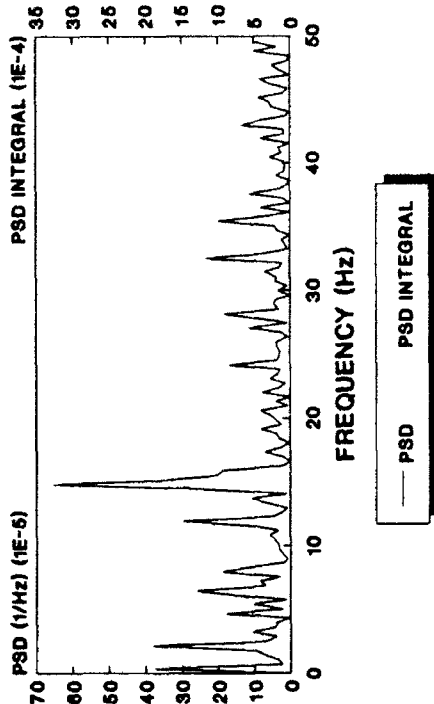
CUBE - HT 8.6 - THETA 30 - AZ 120

# FORCE COEFF - NORMAL 60 FT/SEC NOMINAL



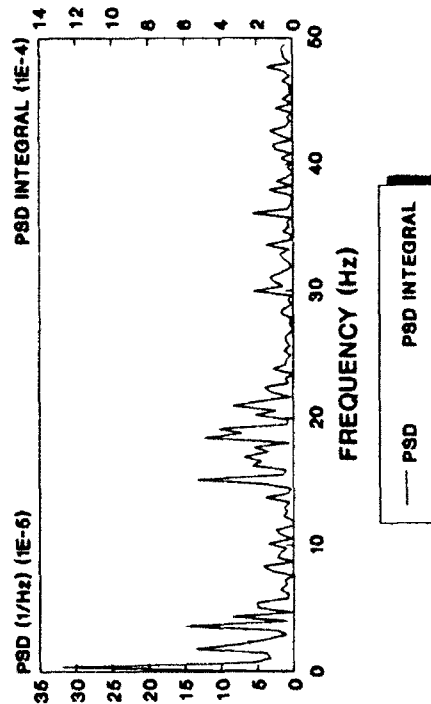
CUBE - HT 8.6 - THETA 30 - AZ 136

# FORCE COEFF - NORMAL 90 FT/SEC NOMINAL



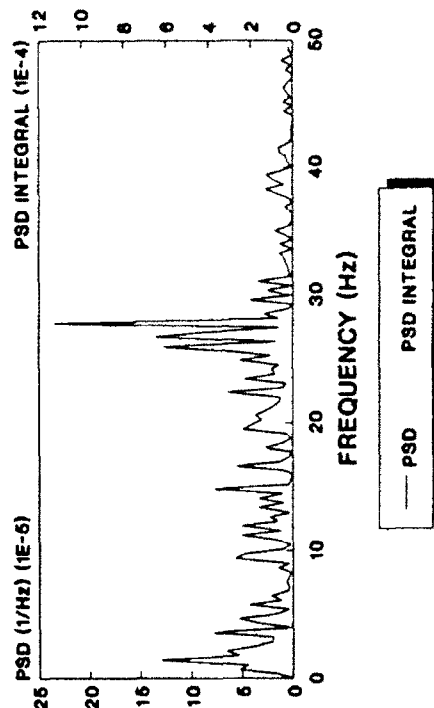
CUBE - HT 8.6 - THETA 30 - AZ 136

# FORCE COEFF - NORMAL 120 FT/SEC NOMINAL



CUBE - HT 8.6 - THETA 30 - AZ 136

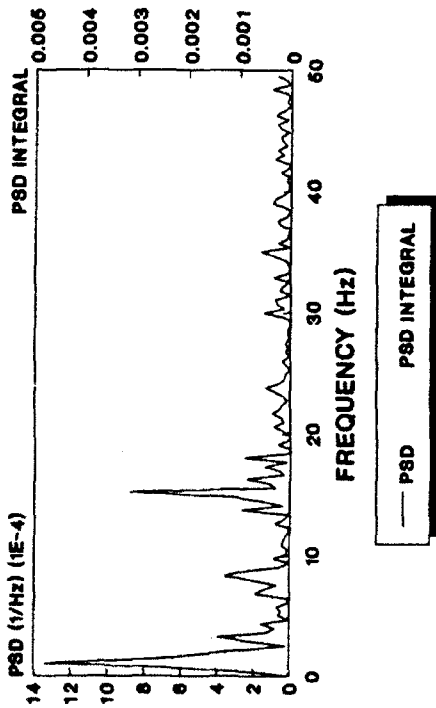
# FORCE COEFF - NORMAL 180 FT/SEC NOMINAL



CUBE - HT 8.6 - THETA 30 - AZ 136

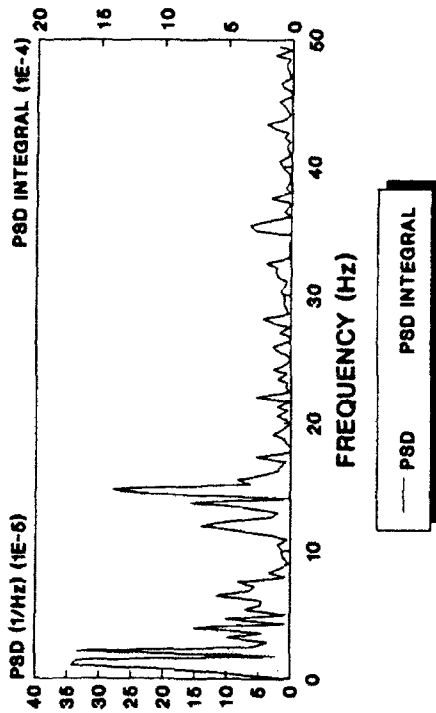


# MOMENT COEFF - NORMAL 60 FT/SEC NOMINAL



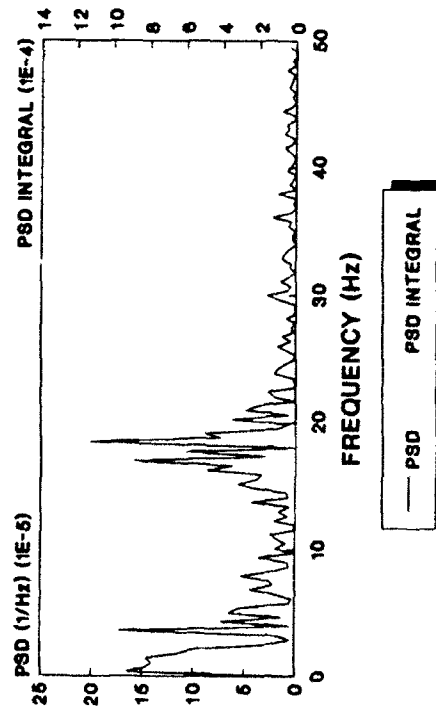
CUBE - HT 8.5 - THETA 30 - AZ 135

# MOMENT COEFF - NORMAL 90 FT/SEC NOMINAL



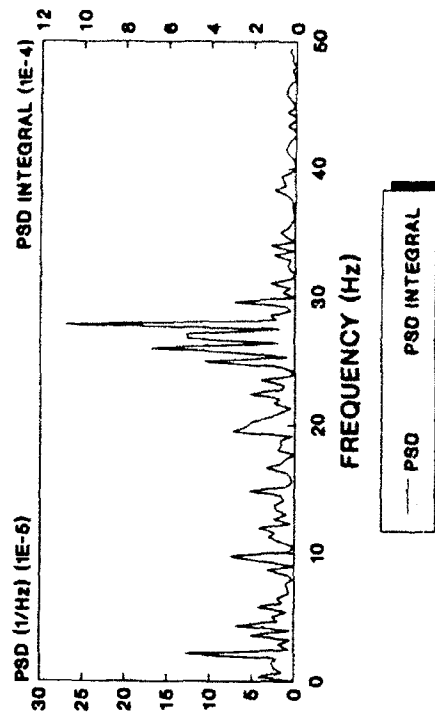
CUBE - HT 8.5 - THETA 30 - AZ 135

# MOMENT COEFF - NORMAL 120 FT/SEC NOMINAL



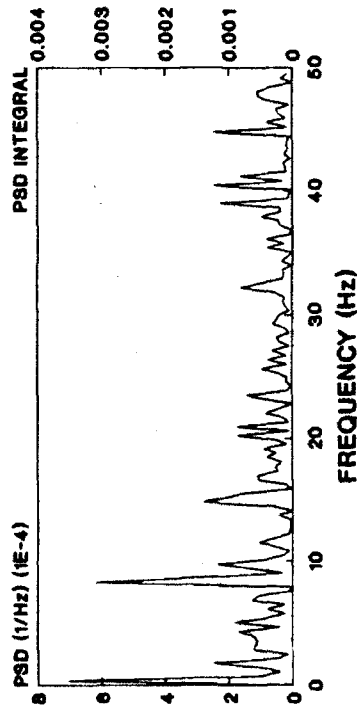
CUBE - HT 8.5 - THETA 30 - AZ 135

# MOMENT COEFF - NORMAL 180 FT/SEC NOMINAL



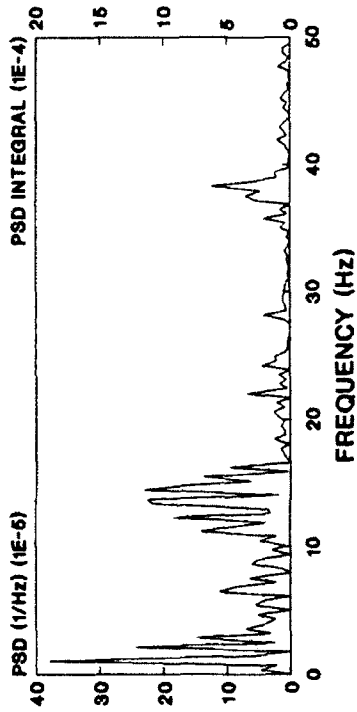
CUBE - HT 8.5 - THETA 30 - AZ 135

# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



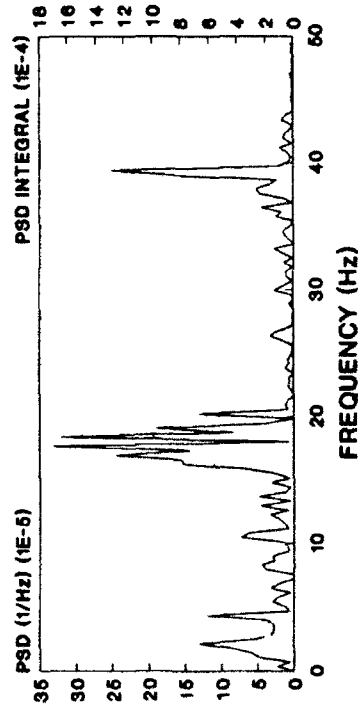
CUBE - HT 8.6 - THETA 30 - AZ 136

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



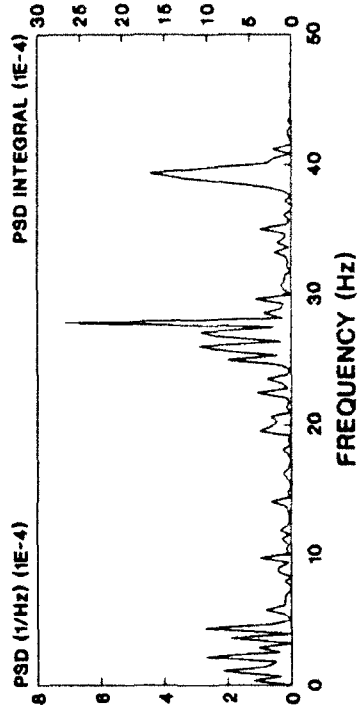
CUBE - HT 8.6 - THETA 30 - AZ 136

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



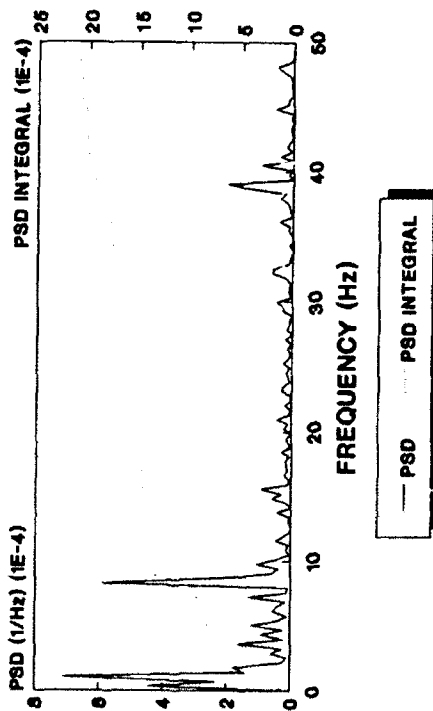
CUBE - HT 8.6 - THETA 30 - AZ 136

# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



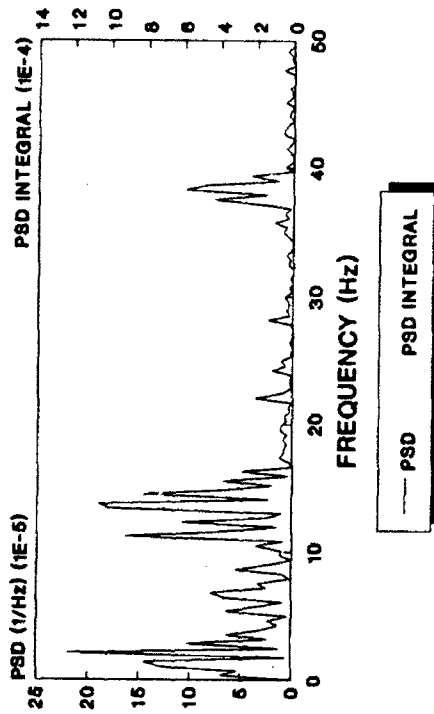
CUBE - HT 8.6 - THETA 30 - AZ 136

# MOMENT COEFF - LATERAL 60 FT/SEC NOMINAL



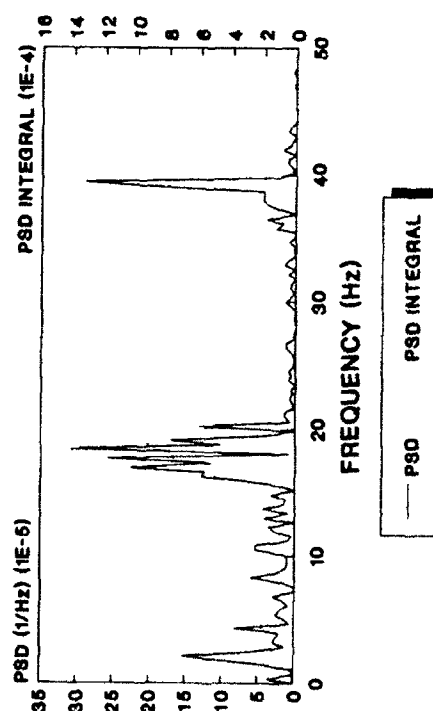
CUBE - HT 8.5 - THETA 30 - AZ 135

# MOMENT COEFF - LATERAL 90 FT/SEC NOMINAL



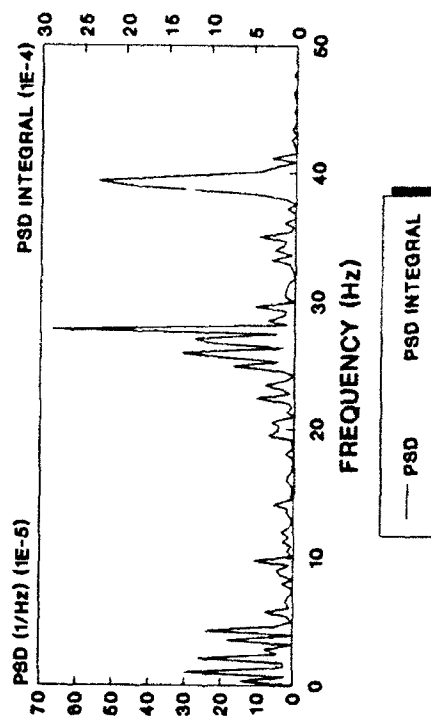
CUBE - HT 8.5 - THETA 30 - AZ 135

# MOMENT COEFF - LATERAL 120 FT/SEC NOMINAL



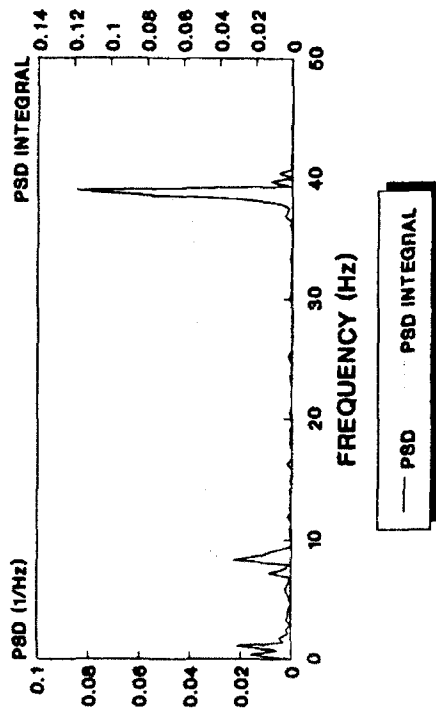
CUBE - HT 8.5 - THETA 30 - AZ 135

# MOMENT COEFF - LATERAL 180 FT/SEC NOMINAL



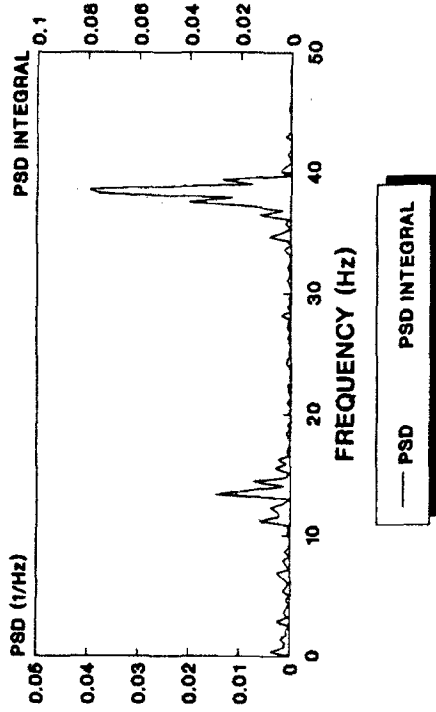
CUBE - HT 8.5 - THETA 30 - AZ 135

# MOMENT COEFF - ROLL 60 FT/SEC NOMINAL



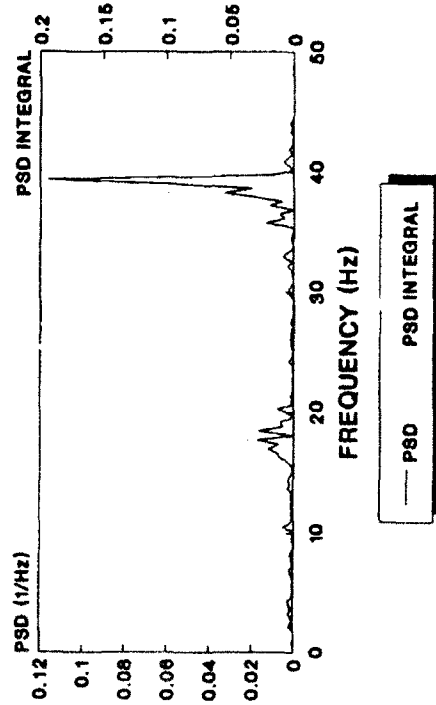
CUBE - HT 8.6 - THETA 30 - AZ 136

# MOMENT COEFF - ROLL 90 FT/SEC NOMINAL



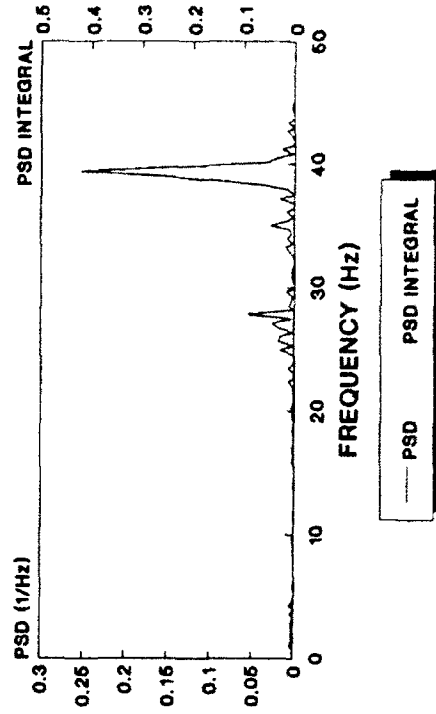
CUBE - HT 8.6 - THETA 30 - AZ 136

# MOMENT COEFF - ROLL 120 FT/SEC NOMINAL



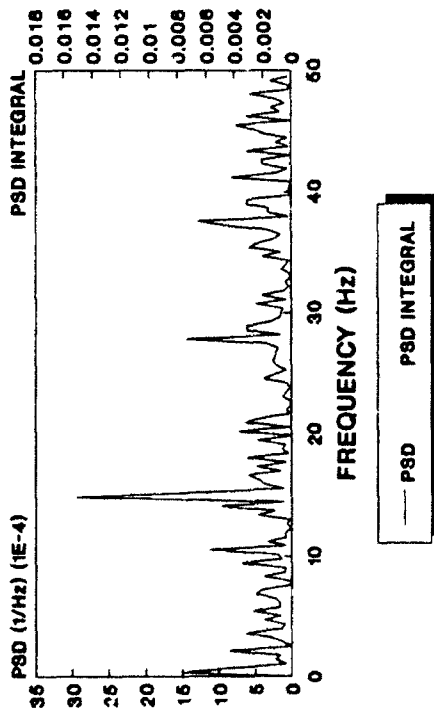
CUBE - HT 8.6 - THETA 30 - AZ 136

# MOMENT COEFF - ROLL 180 FT/SEC NOMINAL



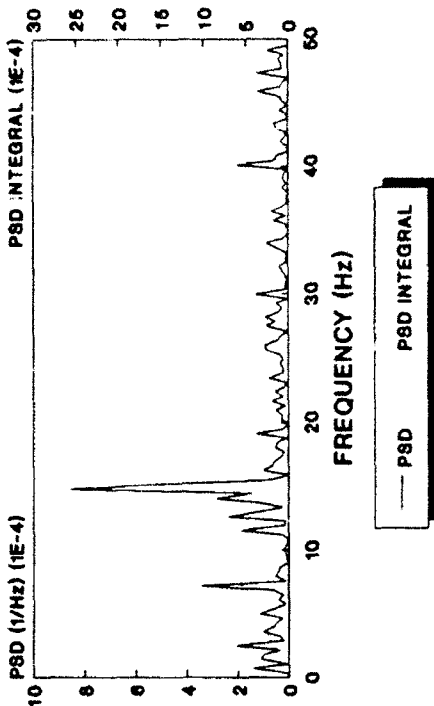
CUBE - HT 8.6 - THETA 30 - AZ 136

# FORCE COEFF - NORMAL 60 FT/SEC NOMINAL



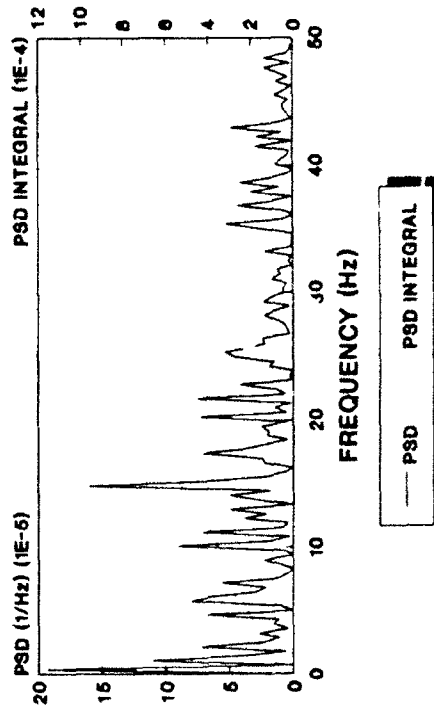
CUBE - HT 6.6 - THETA 30 - AZ 160

# FORCE COEFF - NORMAL 90 FT/SEC NOMINAL



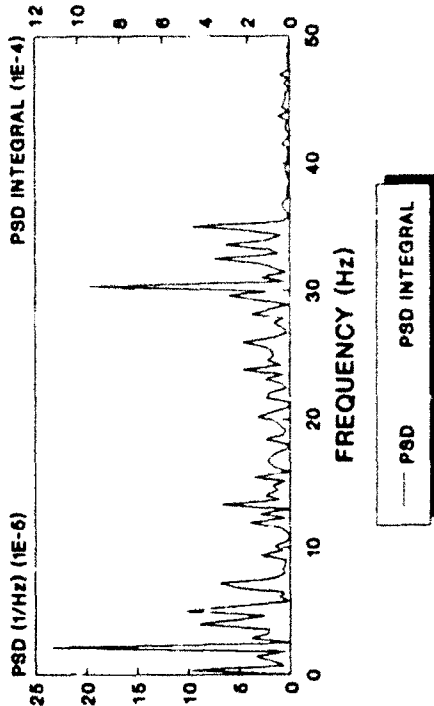
CUBE - HT 6.6 - THETA 30 - AZ 160

# FORCE COEFF - NORMAL 120 FT/SEC NOMINAL



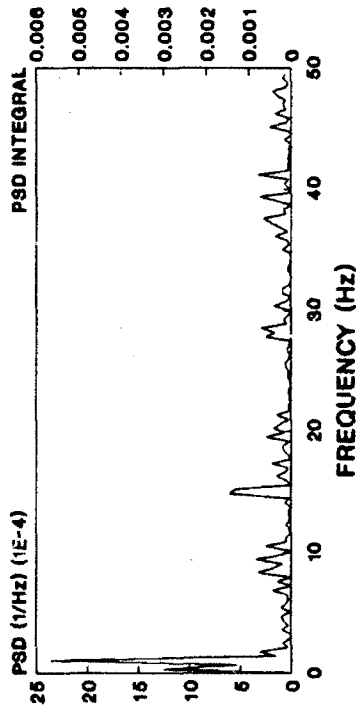
CUBE - HT 6.6 - THETA 30 - AZ 160

# FORCE COEFF - NORMAL 180 FT/SEC NOMINAL



CUBE - HT 6.6 - THETA 30 - AZ 160

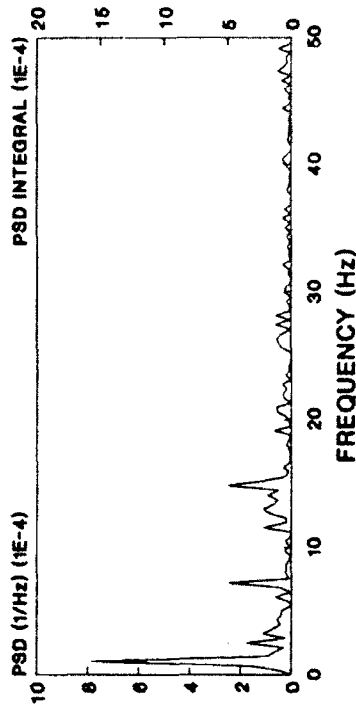
# MOMENT COEFF - NORMAL 60 FT/SEC NOMINAL



PSD PSD INTEGRAL

CUBE - HT 8.6 - THETA 30 - AZ 160

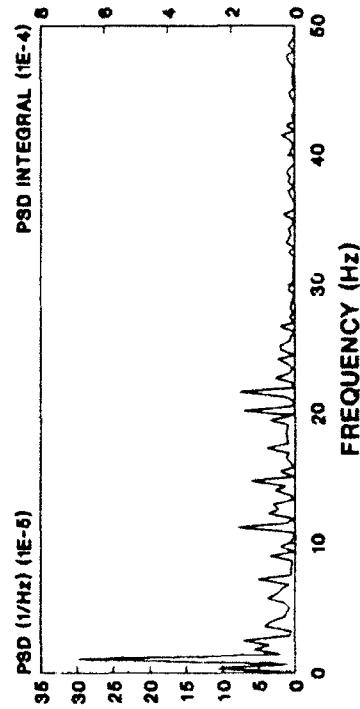
# MOMENT COEFF - NORMAL 90 FT/SEC NOMINAL



PSD PSD INTEGRAL

CUBE - HT 8.6 - THETA 30 - AZ 160

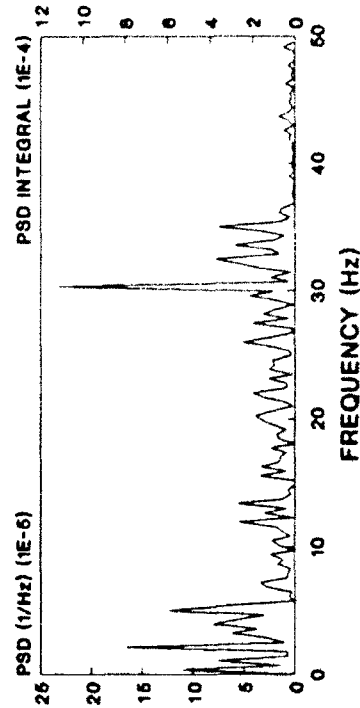
# MOMENT COEFF - NORMAL 120 FT/SEC NOMINAL



PSD PSD INTEGRAL

CUBE - HT 8.6 - THETA 30 - AZ 160

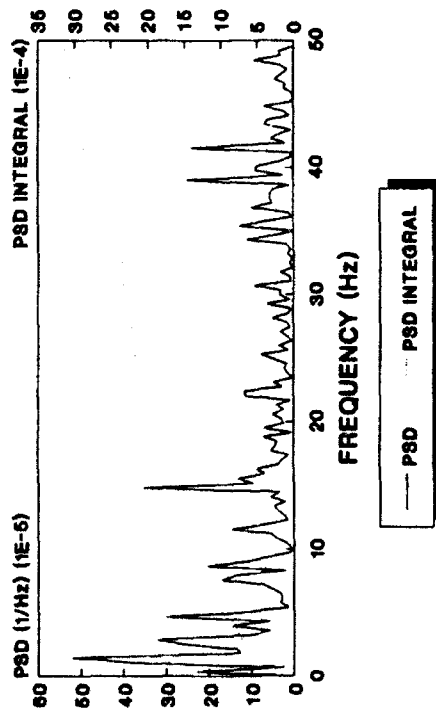
# MOMENT COEFF - NORMAL 180 FT/SEC NOMINAL



PSD PSD INTEGRAL

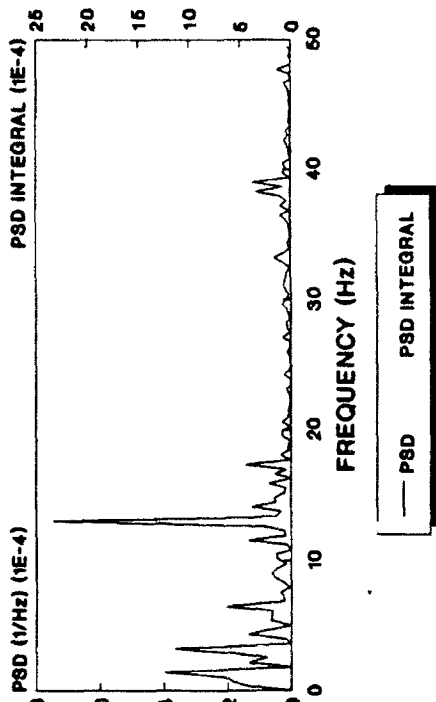
CUBE - HT 8.6 - THETA 30 - AZ 160

# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



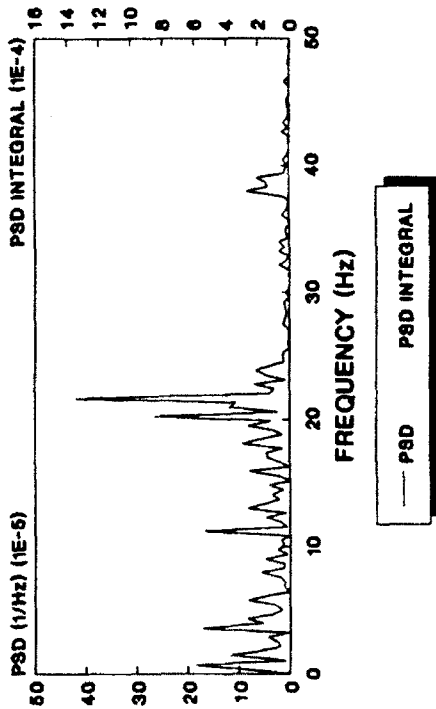
CUBE - HT 6.6 - THETA 30 - AZ 180

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



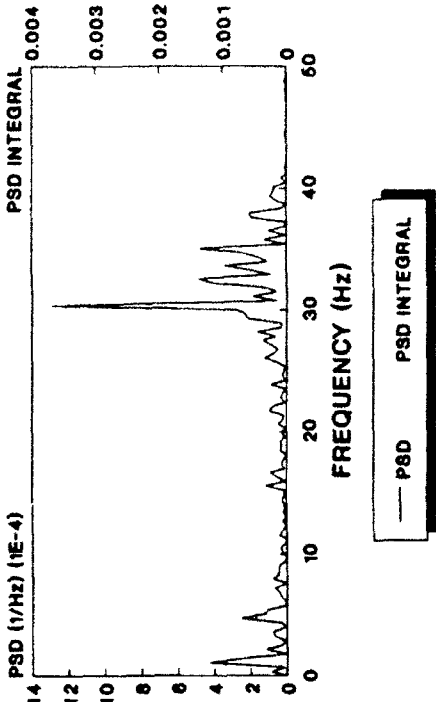
CUBE - HT 6.6 - THETA 30 - AZ 180

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



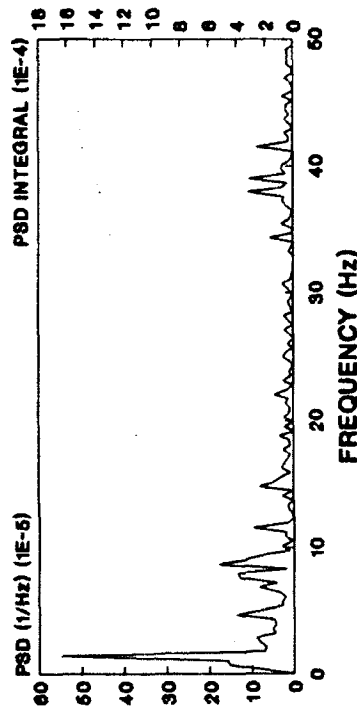
CUBE - HT 6.6 - THETA 30 - AZ 180

# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



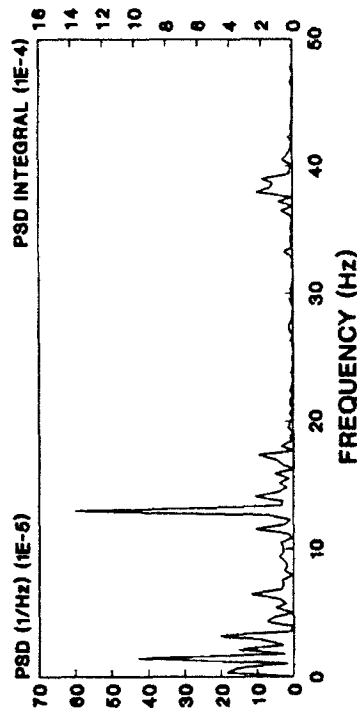
CUBE - HT 6.6 - THETA 30 - AZ 180

# MOMENT COEFF - LATERAL 60 FT/SEC NOMINAL



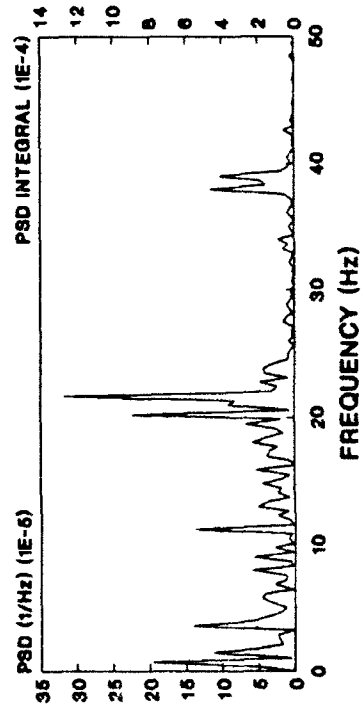
CUBE - HT 8.6 - THETA 30 - AZ 160

# MOMENT COEFF - LATERAL 90 FT/SEC NOMINAL



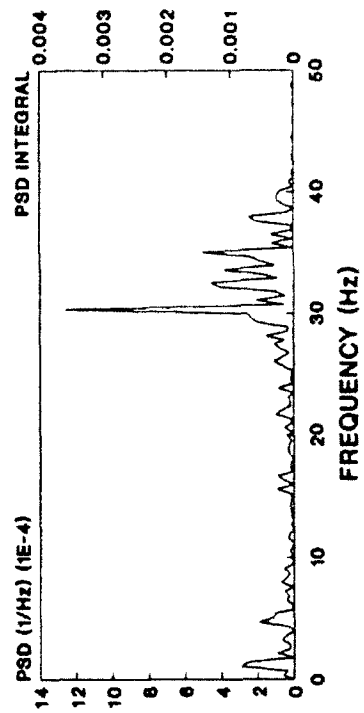
CUBE - HT 8.6 - THETA 30 - AZ 160

# MOMENT COEFF - LATERAL 120 FT/SEC NOMINAL



CUBE - HT 8.6 - THETA 30 - AZ 160

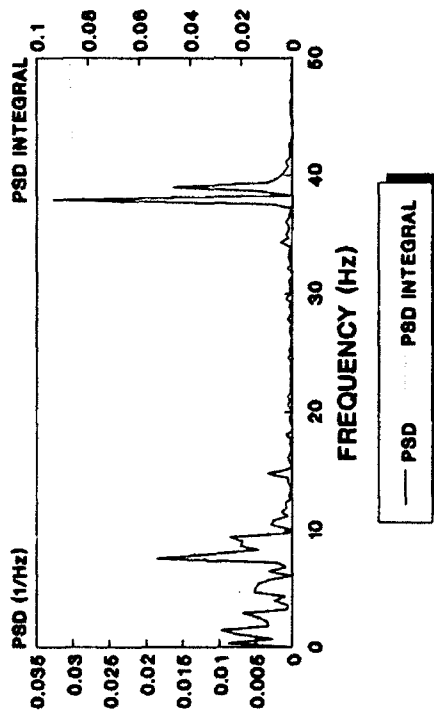
# MOMENT COEFF - LATERAL 180 FT/SEC NOMINAL



CUBE - HT 8.6 - THETA 30 - AZ 160

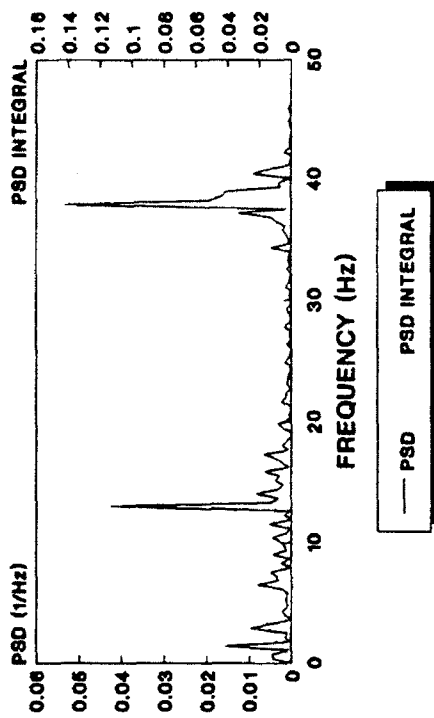


# MOMENT COEFF - ROLL 60 FT/SEC NOMINAL



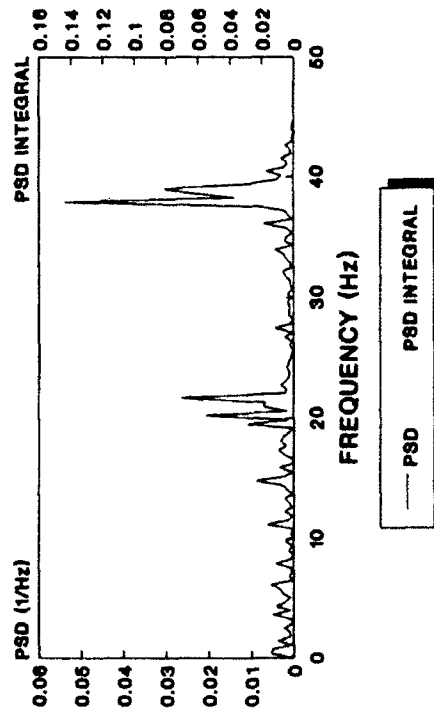
CUBE - HT 8.6 - THETA 30 - AZ 160

# MOMENT COEFF - ROLL 90 FT/SEC NOMINAL



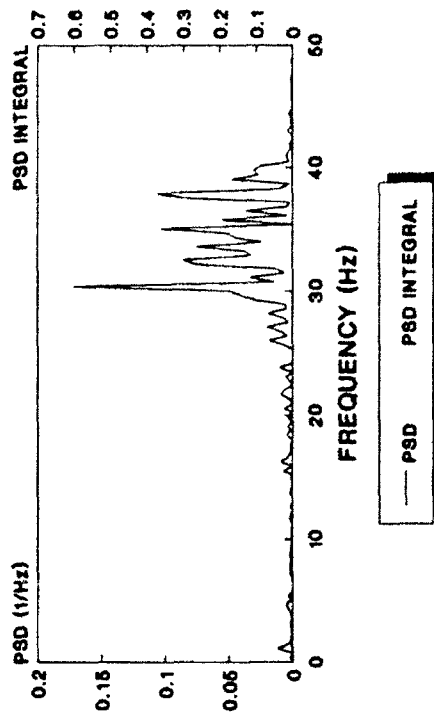
CUBE - HT 8.6 - THETA 30 - AZ 160

# MOMENT COEFF - ROLL 120 FT/SEC NOMINAL



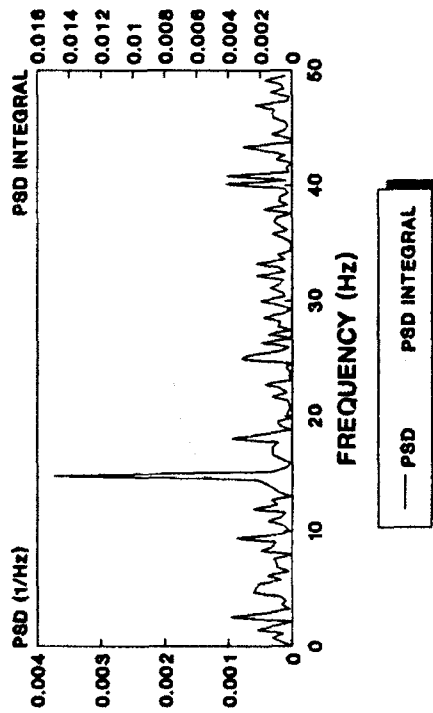
CUBE - HT 8.6 - THETA 30 - AZ 160

# MOMENT COEFF - ROLL 180 FT/SEC NOMINAL



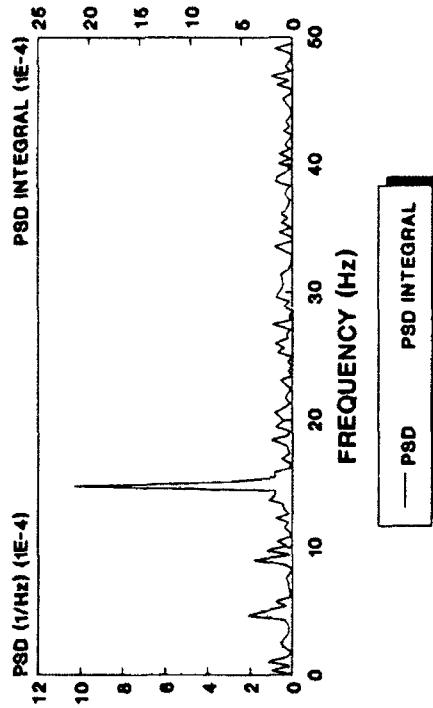
CUBE - HT 8.6 - THETA 30 - AZ 160

# FORCE COEFF - NORMAL 60 FT/SEC NOMINAL



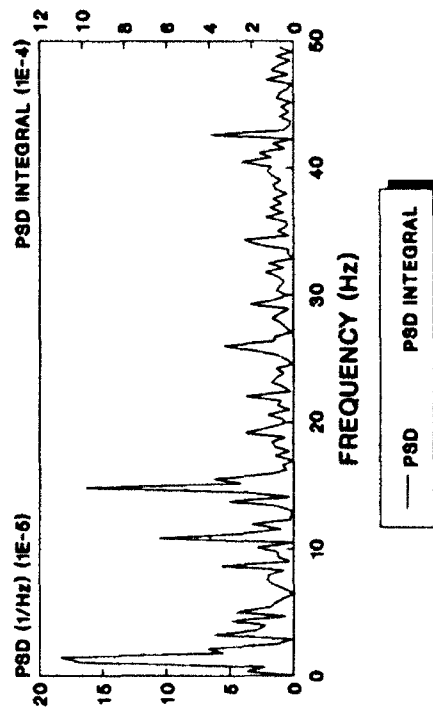
CUBE - HT 8.6 - THETA 30 - AZ 180

# FORCE COEFF - NORMAL 90 FT/SEC NOMINAL



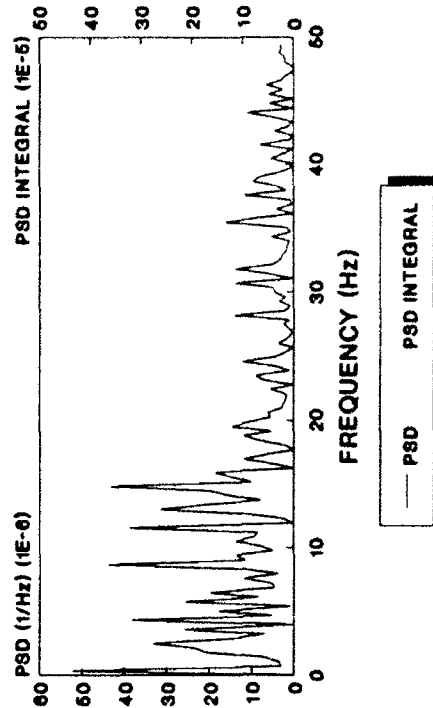
CUBE - HT 8.6 - THETA 30 - AZ 180

# FORCE COEFF - NORMAL 120 FT/SEC NOMINAL



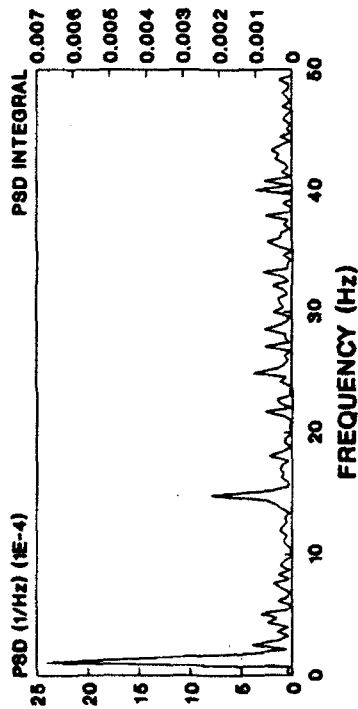
CUBE - HT 8.6 - THETA 30 - AZ 180

# FORCE COEFF - NORMAL 180 FT/SEC NOMINAL



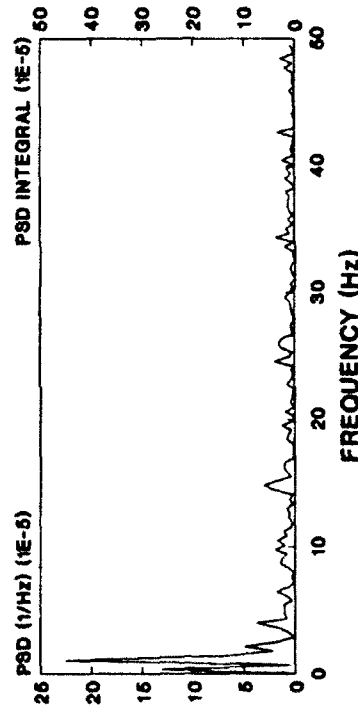
CUBE - HT 8.6 - THETA 30 - AZ 180

# MOMENT COEFF - NORMAL 60 FT/SEC NOMINAL



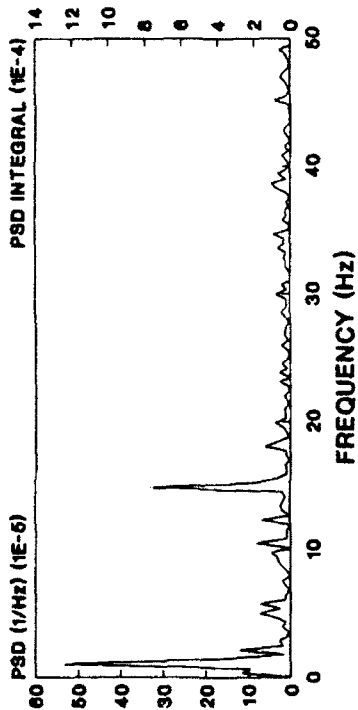
CUBE - HT 8.5 - THETA 30 - AZ 180

# MOMENT COEFF - NORMAL 120 FT/SEC NOMINAL



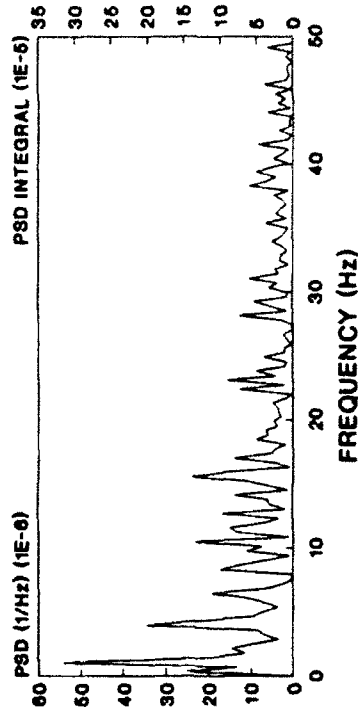
CUBE - HT 8.5 - THETA 30 - AZ 180

# MOMENT COEFF - NORMAL 90 FT/SEC NOMINAL



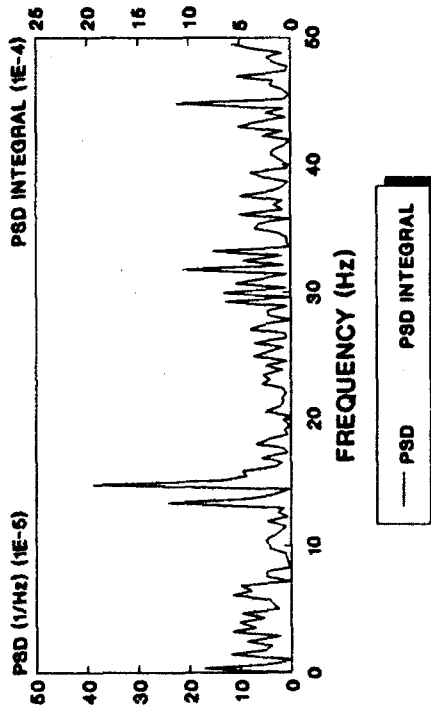
CUBE - HT 8.5 - THETA 30 - AZ 180

# MOMENT COEFF - NORMAL 180 FT/SEC NOMINAL



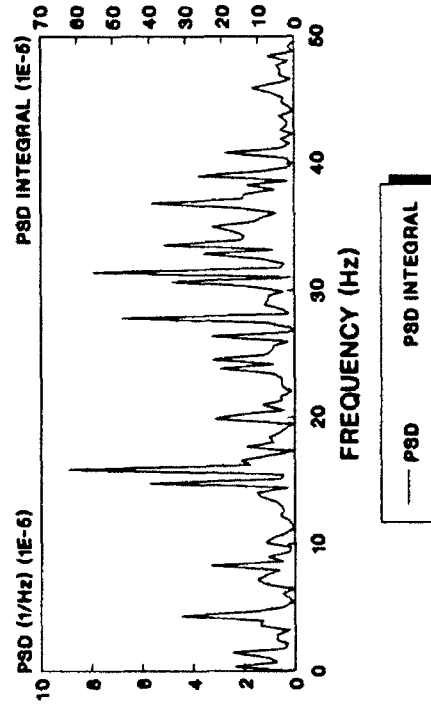
CUBE - HT 8.5 - THETA 30 - AZ 180

# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



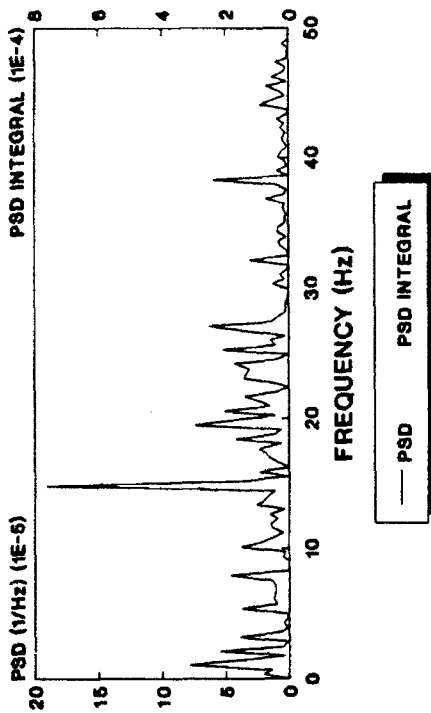
CUBE - HT 8.6 - THETA 30 - AZ 180

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



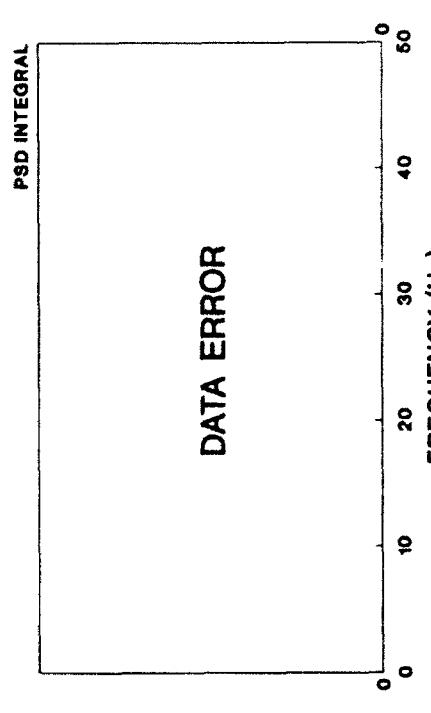
CUBE - HT 8.6 - THETA 30 - AZ 180

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



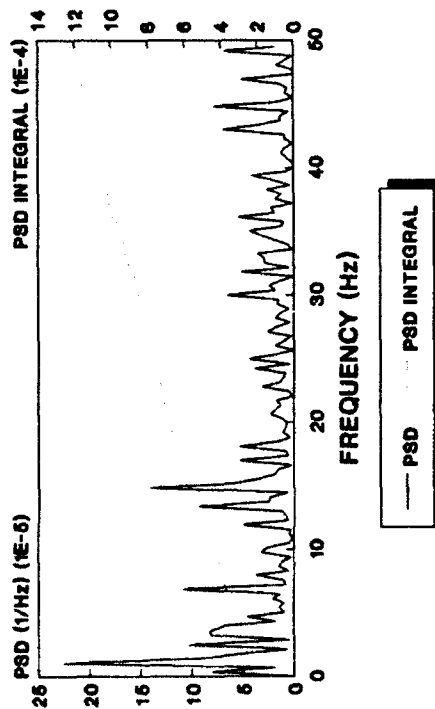
CUBE - HT 8.6 - THETA 30 - AZ 180

# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



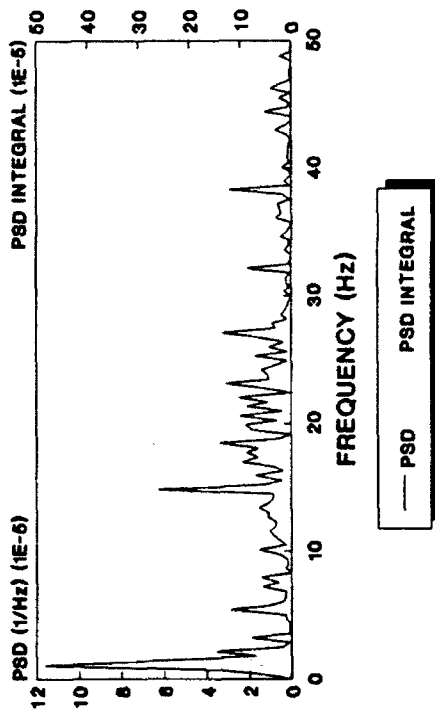
CUBE - HT 8.6 - THETA 30 - AZ 180

# MOMENT COEFF - LATERAL 60 FT/SEC NOMINAL



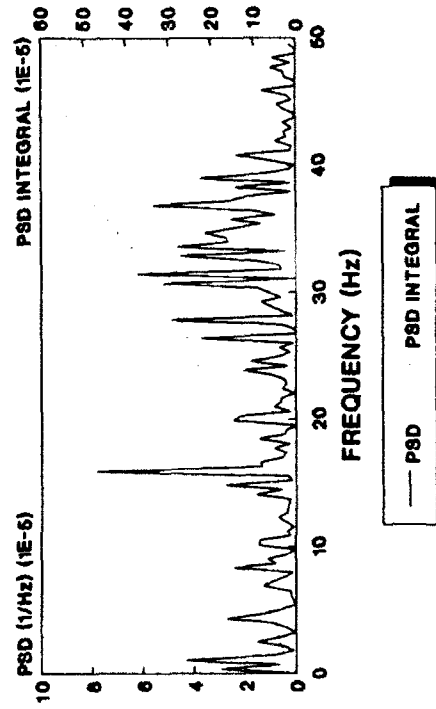
CUBE - HT 8.5 - THETA 30 - AZ 180

# MOMENT COEFF - LATERAL 90 FT/SEC NOMINAL



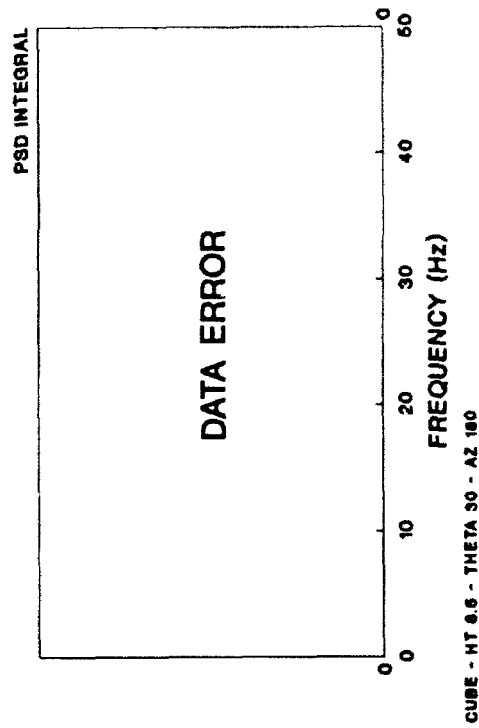
CUBE - HT 8.6 - THETA 30 - AZ 180

# MOMENT COEFF - LATERAL 120 FT/SEC NOMINAL

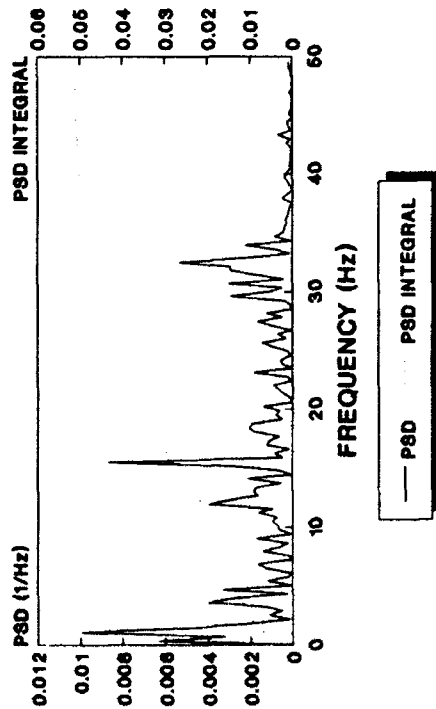


CUBE - HT 8.6 - THETA 30 - AZ 180

# MOMENT COEFF - LATERAL 180 FT/SEC NOMINAL

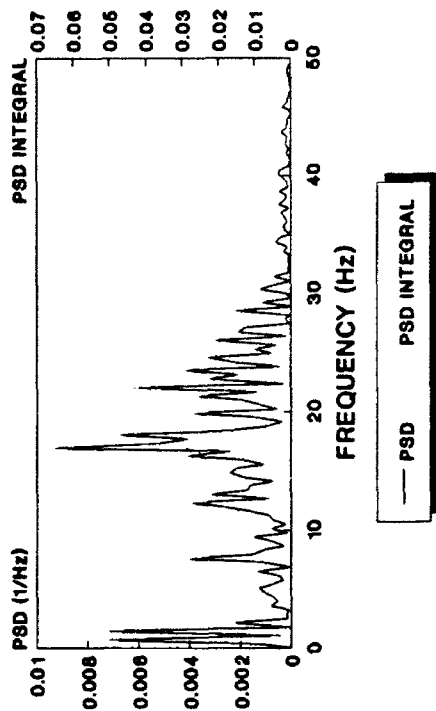


# MOMENT COEFF - ROLL 60 FT/SEC NOMINAL



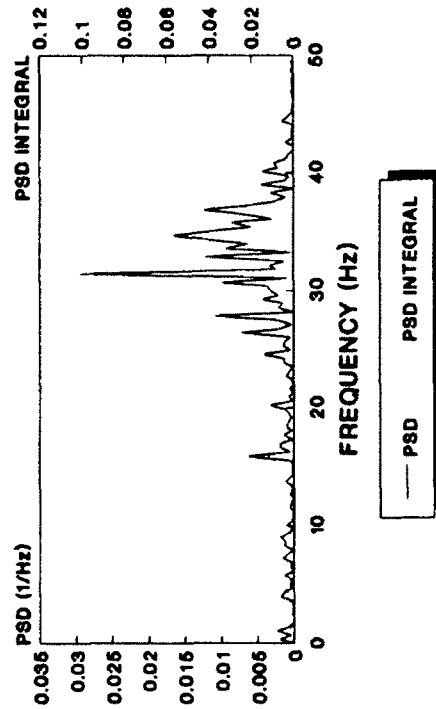
CUBE - HT 8.6 - THETA 30 - AZ 180

# MOMENT COEFF - ROLL 90 FT/SEC NOMINAL



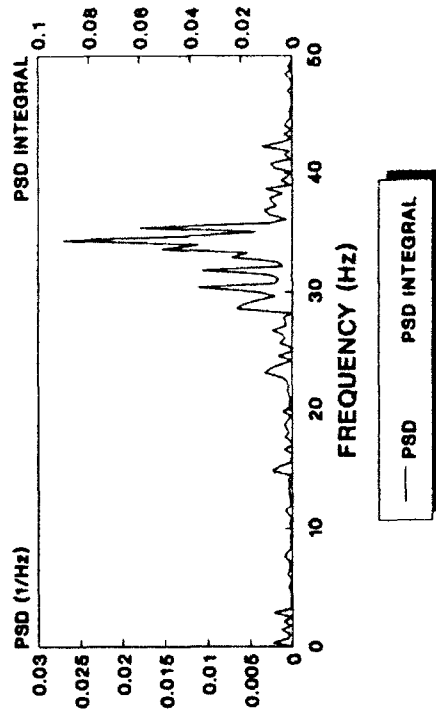
CUBE - HT 8.6 - THETA 30 - AZ 180

# MOMENT COEFF - ROLL 120 FT/SEC NOMINAL



CUBE - HT 8.6 - THETA 30 - AZ 180

# MOMENT COEFF - ROLL 180 FT/SEC NOMINAL



CUBE - HT 8.6 - THETA 30 - AZ 180

## DATA REPORT

SHAPE:	CUBE
DECLINATION [THETA (degrees)]:	45
DIMENSIONS [LxWxH (in)]:	11.1 x 7.88 x 8.31
WEIGHT (gm):	1029.5
TORSION FREQUENCY (Hz):	30
LATERAL (SIDE BEND) FREQUENCY (Hz):	61
NORMAL (AFT BEND) FREQUENCY (Hz):	81
AZIMUTHS (degrees):	0, 30, 45, 60, 90, 120, 135, 150, 180

### GRAPH CORRECTIONS:

- The mean value of the **ROLL** moment coefficients should be divided by 12.
- The PSD and PSD Integral values of the **ROLL** moment coefficients should be divided by 144.

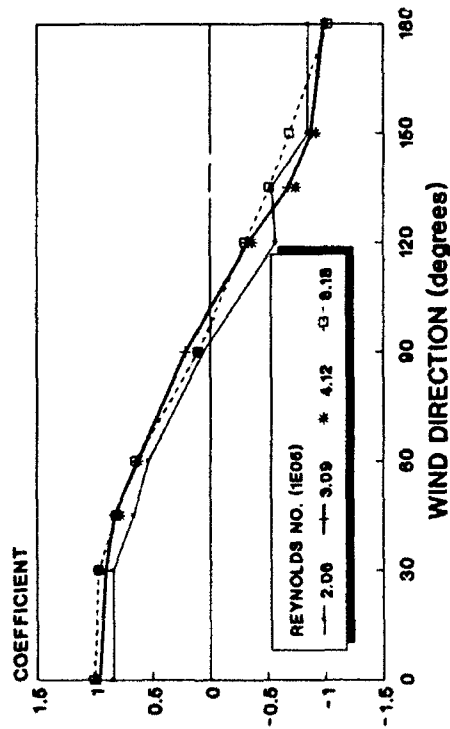
### OBSERVATIONS:

- Very good shedding is seen in the normal data at 90 degrees azimuth. The shed tends to be single frequency with the exception of 120 ft/sec tunnel speed which seems to be multifrequency. Two frequency spikes are seen in the 90 ft/sec data but one of the spikes is the 15.176 Hz spike that shows up in much of the data and is probably not a true shed.
- Very good shedding is seen in the lateral data at 150 degrees azimuth. The shed may be contaminated at 180 ft/sec by the 30 Hz torsional frequency which is present in most of the data. Evidence of the shedding can also be seen in the normal data.

- Good shedding can be seen in the lateral and roll data at 30 and 135 degrees azimuth. The shed merges with the torsional frequency at wind speeds of 180 ft/sec making analysis difficult. Evidence of the shedding can also be seen in the normal data but it is not as strong.
- Poor shedding can be seen in the data at 120 degrees azimuth.

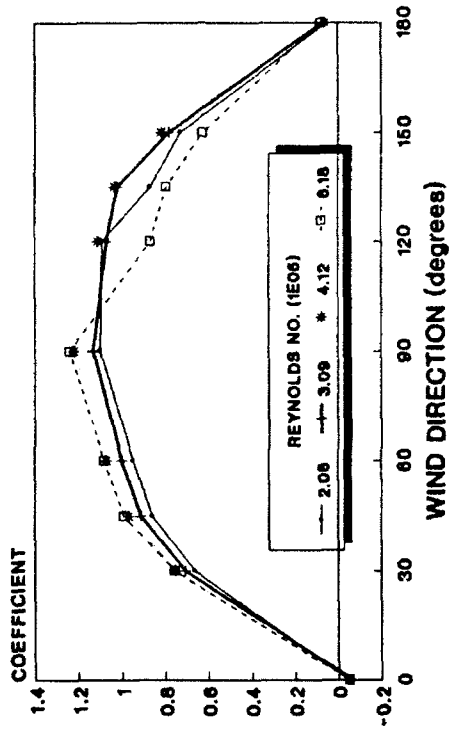


# MEAN FORCE COEFFICIENT NORMAL DIRECTION



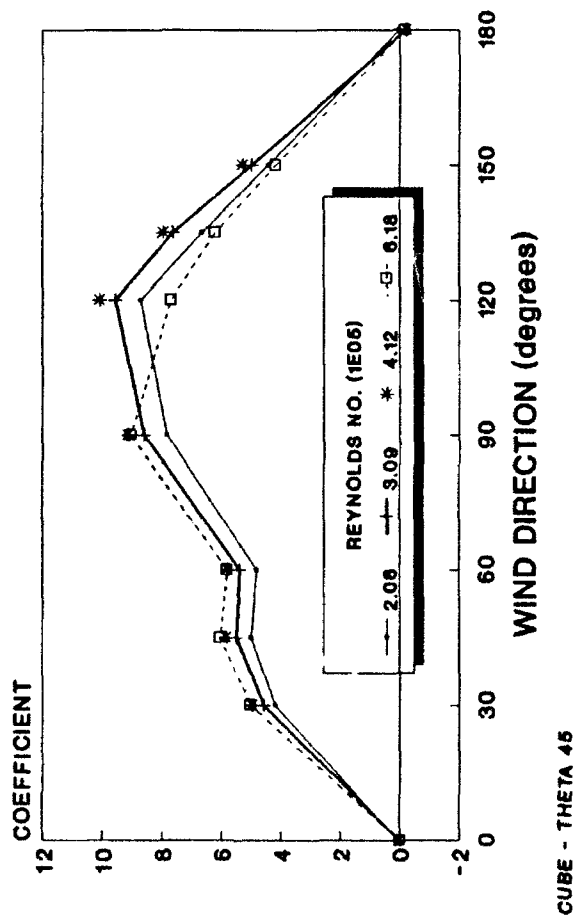
CUBE -  $\theta = 45^\circ$

# MEAN FORCE COEFFICIENT LATERAL DIRECTION

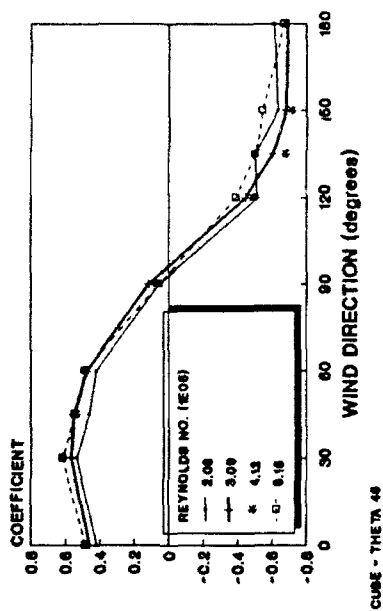


CUBE -  $\theta = 45^\circ$

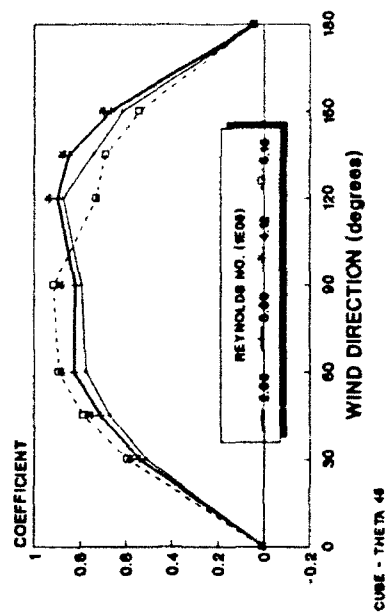
# MEAN MOMENT COEFFICIENT ROLL DIRECTION



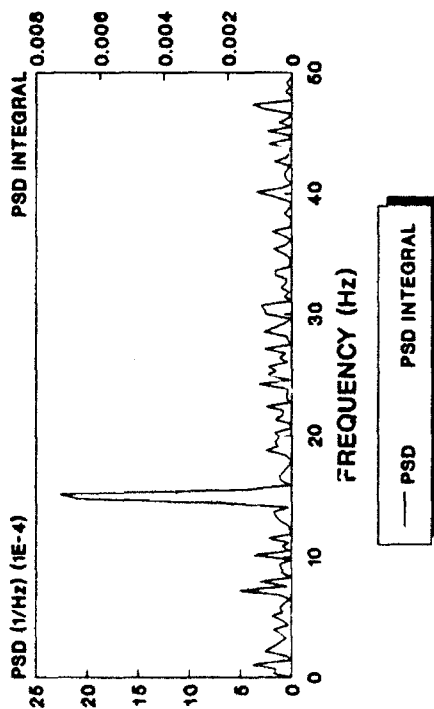
# MEAN MOMENT COEFFICIENT NORMAL DIRECTION



# MEAN MOMENT COEFFICIENT LATERAL DIRECTION

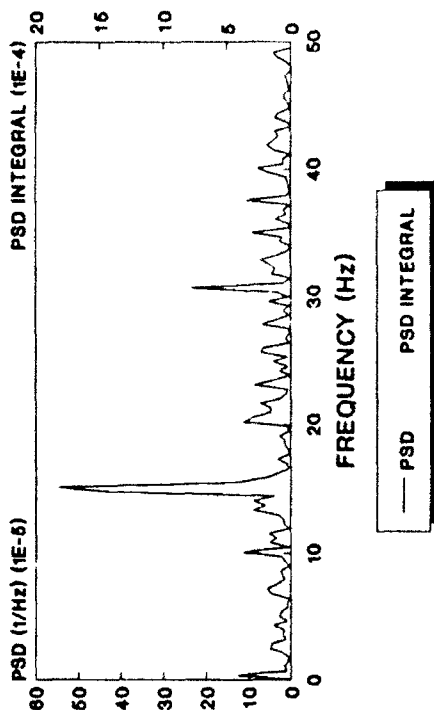


# FORCE COEFF - NORMAL 60 FT/SEC NOMINAL



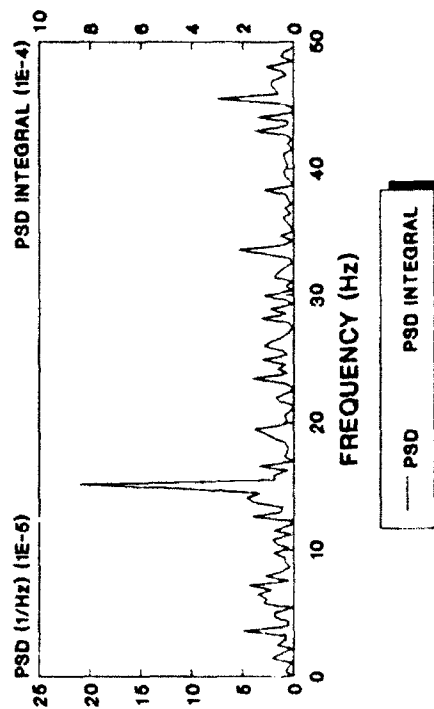
CUBE - HT 8.31 - THETA 45 - AZ 000

# FORCE COEFF - NORMAL 90 FT/SEC NOMINAL



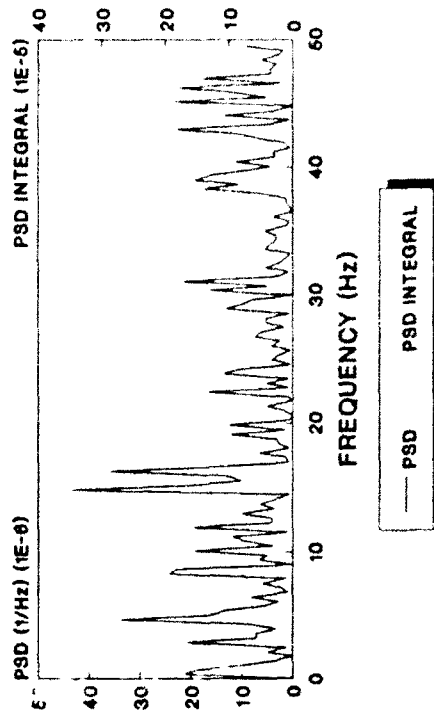
CUBE - HT 8.31 - THETA 45 - AZ 000

# FORCE COEFF - NORMAL 120 FT/SEC NOMINAL



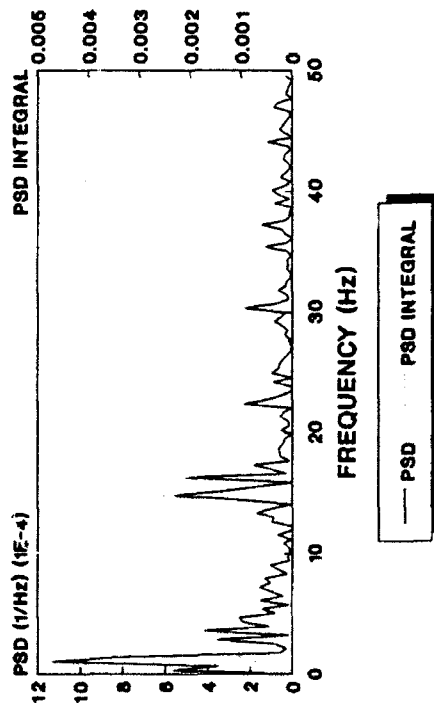
CUBE - HT 8.31 - THETA 45 - AZ 000

# FORCE COEFF - NORMAL 180 FT/SEC NOMINAL



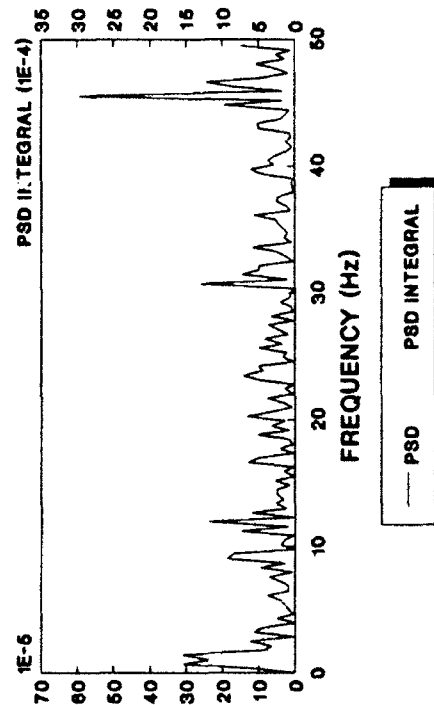
CUBE - HT 8.31 - THETA 45 - AZ 000

# MOMENT COEFF - NORMAL 60 FT/SEC NOMINAL



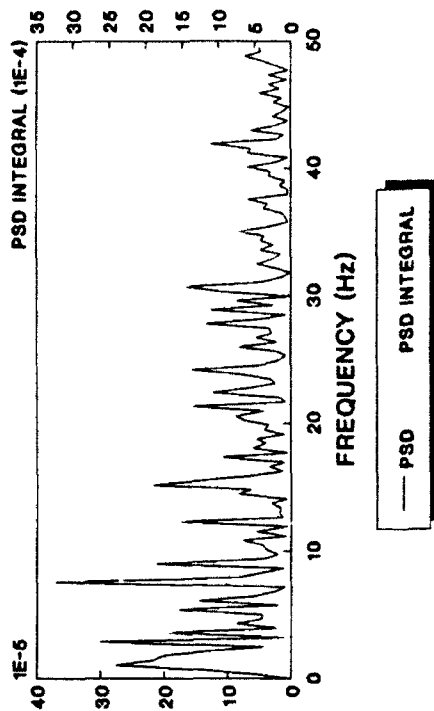
CUBE - HT 8.31 - THETA 45 - AZ 000

# MOMENT COEFF - NORMAL 120 FT/SEC NOMINAL



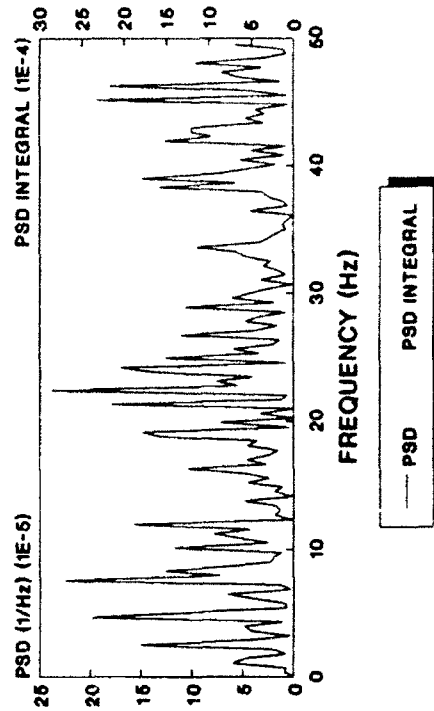
CUBE - HT 8.31 - THETA 45 - AZ 000

# MOMENT COEFF - NORMAL 90 FT/SEC NOMINAL



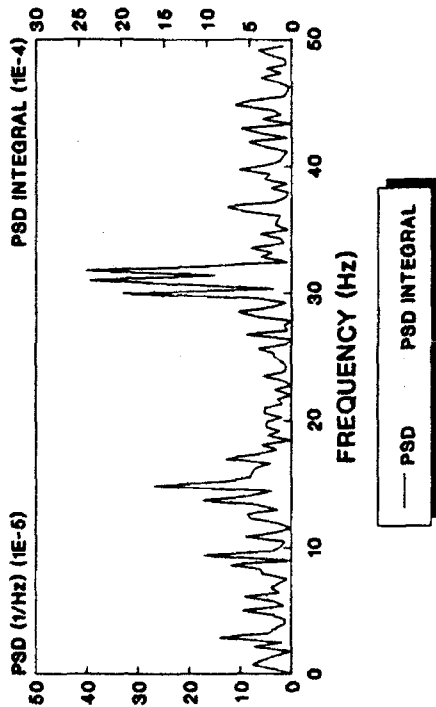
CUBE - HT 8.31 - THETA 45 - AZ 000

# MOMENT COEFF - NORMAL 180 FT/SEC NOMINAL



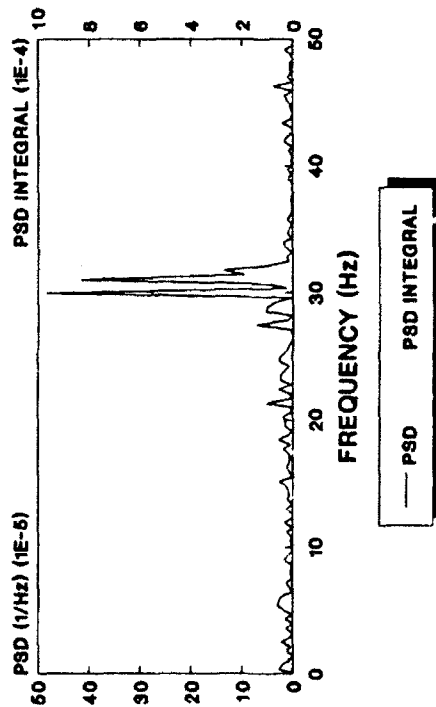
CUBE - HT 8.31 - THETA 45 - AZ 000

# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



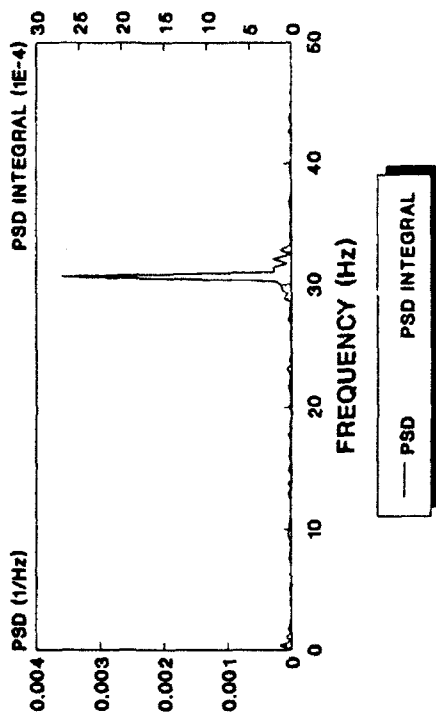
CUBE - HT 8.31 - THETA 46 - AZ 000

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



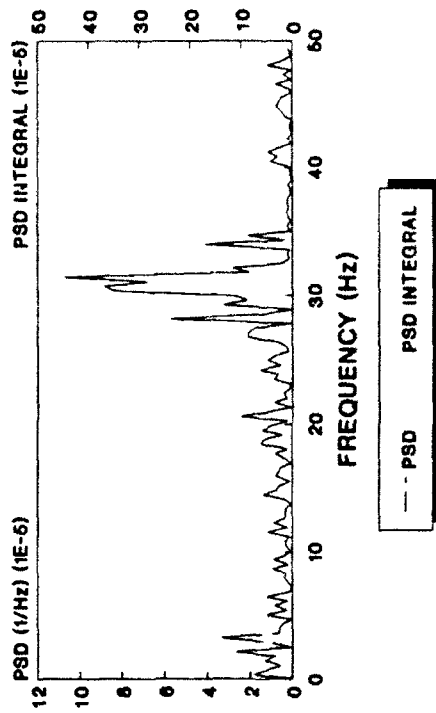
CUBE - HT 8.31 - THETA 46 - AZ 000

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



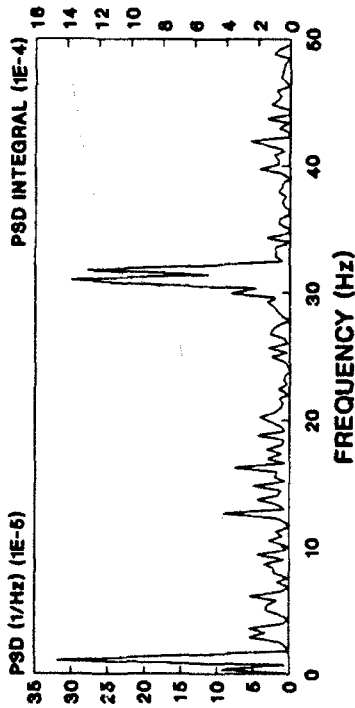
CUBE - HT 8.31 - THETA 46 - AZ 000

# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



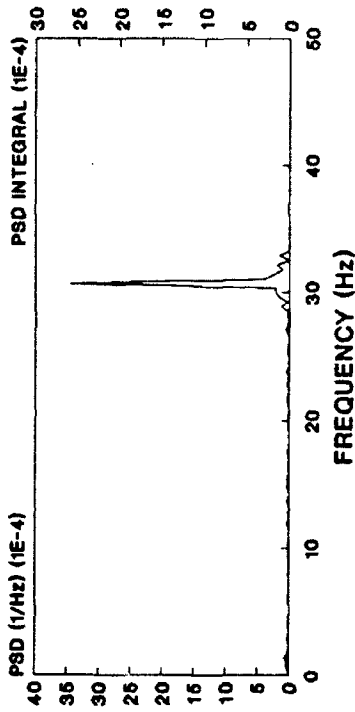
CUBE - HT 8.31 - THETA 46 - AZ 000

# MOMENT COEFF - LATERAL 60 FT/SEC NOMINAL



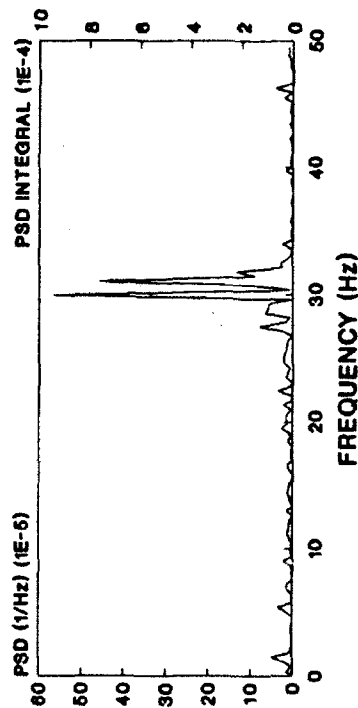
CUBE - HT 8.31 - THETA 45 - AZ 000

# MOMENT COEFF - LATERAL 90 FT/SEC NOMINAL



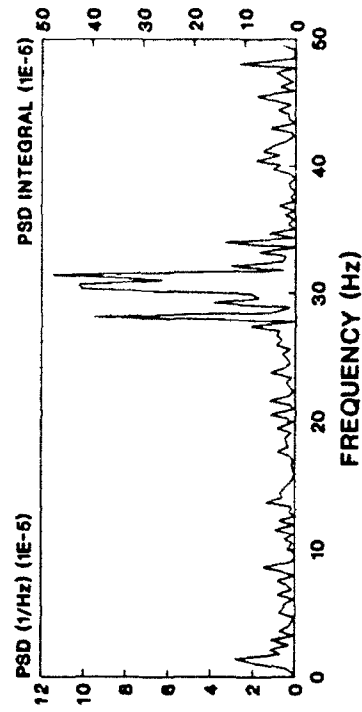
CUBE - HT 8.31 - THETA 45 - AZ 000

# MOMENT COEFF - LATERAL 120 FT/SEC NOMINAL



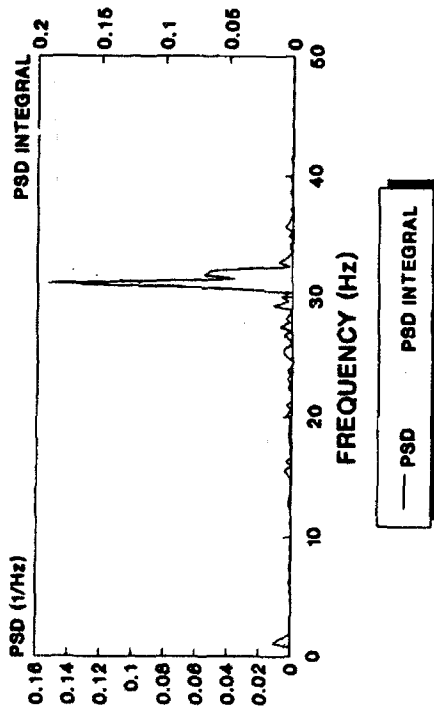
CUBE - HT 8.31 - THETA 45 - AZ 000

# MOMENT COEFF - LATERAL 180 FT/SEC NOMINAL



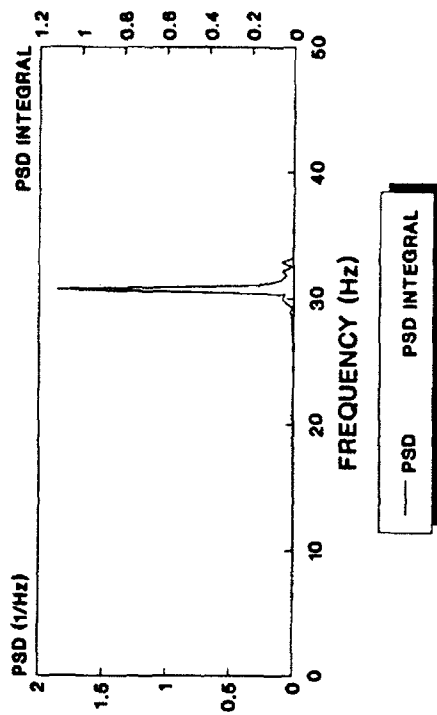
CUBE - HT 8.31 - THETA 45 - AZ 000

# MOMENT COEFF - ROLL 60 FT/SEC NOMINAL



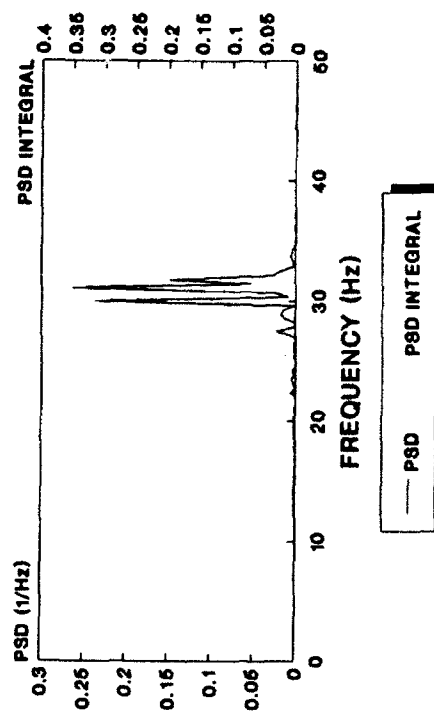
CUBE - HT 8.31 - THETA 45 - AZ 000

# MOMENT COEFF - ROLL 90 FT/SEC NOMINAL



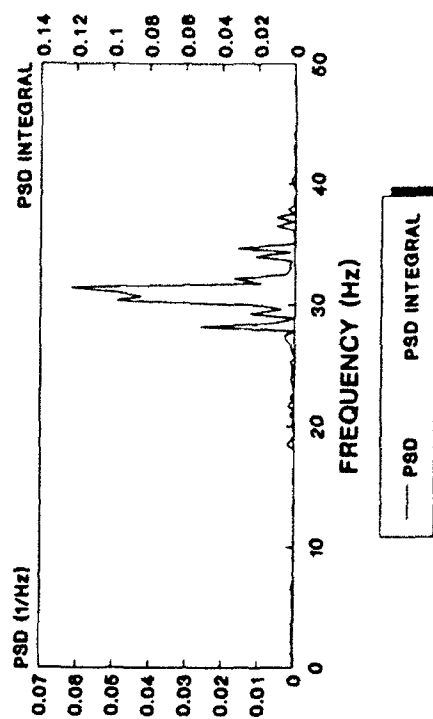
CUBE - HT 8.31 - THETA 45 - AZ 000

# MOMENT COEFF - ROLL 120 FT/SEC NOMINAL



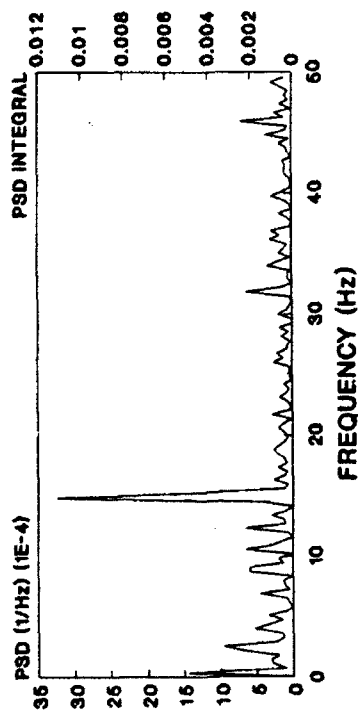
CUBE - HT 8.31 - THETA 45 - AZ 000

# MOMENT COEFF - ROLL 180 FT/SEC NOMINAL



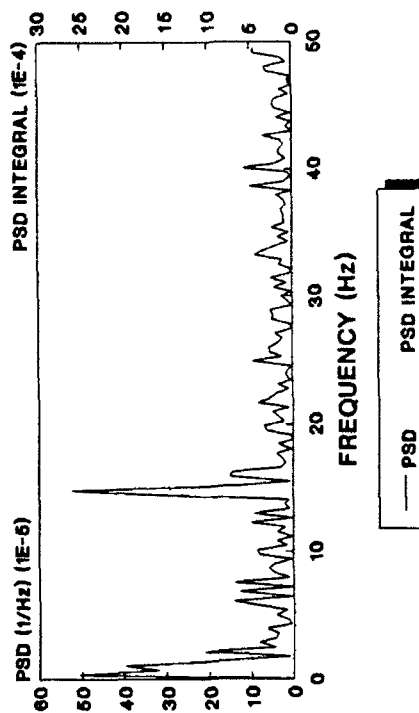
CUBE - HT 8.31 - THETA 45 - AZ 000

# FORCE COEFF - NORMAL 60 FT/SEC NOMINAL



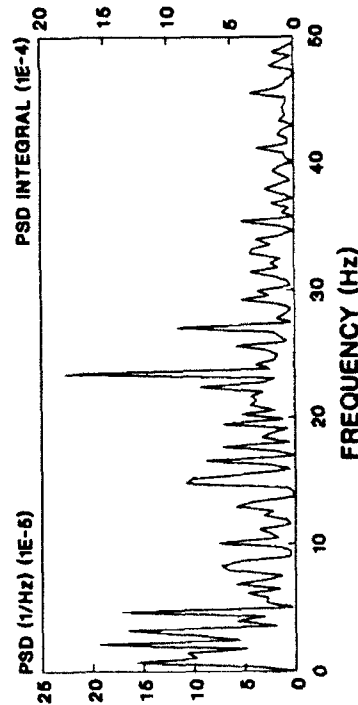
CUBE - HT 8.31 - THETA 45 - AZ 030

# FORCE COEFF - NORMAL 90 FT/SEC NOMINAL



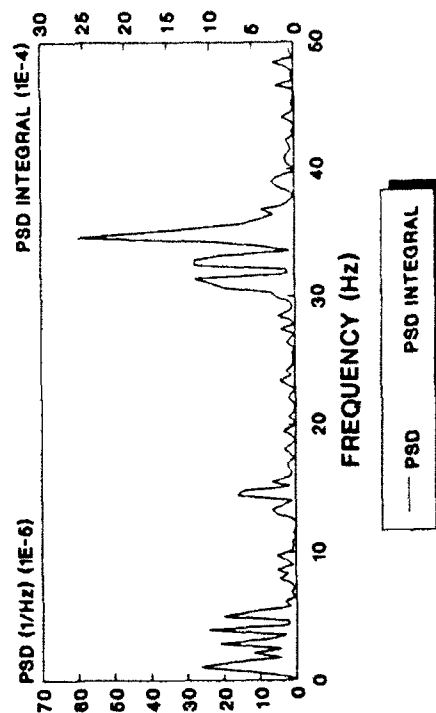
CUBE - HT 8.31 - THETA 45 - AZ 030

# FORCE COEFF - NORMAL 120 FT/SEC NOMINAL



CUBE - HT 8.31 - THETA 45 - AZ 030

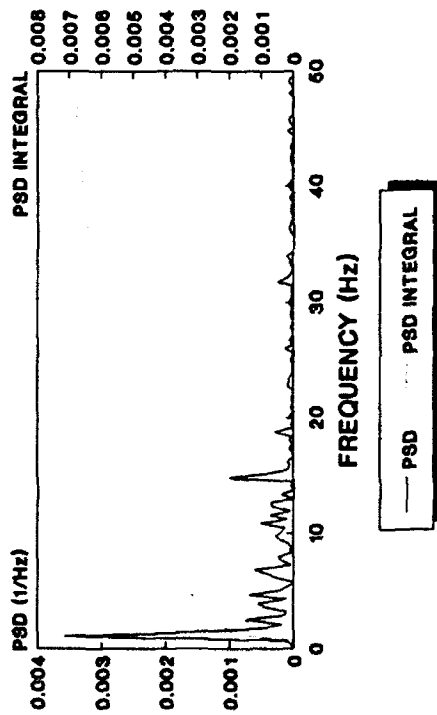
# FORCE COEFF - NORMAL 180 FT/SEC NOMINAL



CUBE - HT 8.31 - THETA 45 - AZ 030

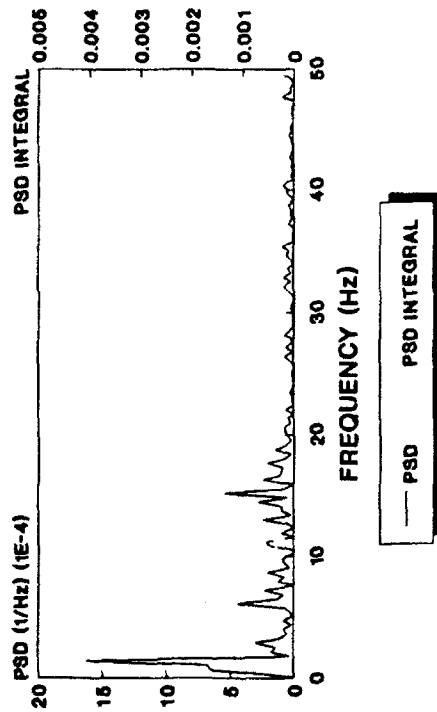


# MOMENT COEFF - NORMAL 60 FT/SEC NOMINAL



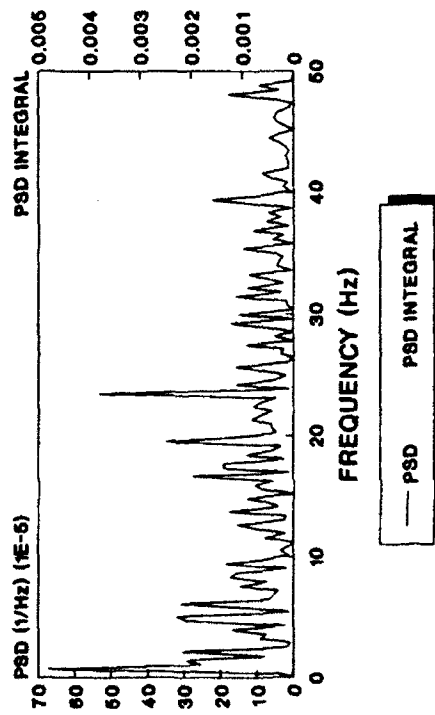
CUBE - HT 8.31 - THETA 46 - AZ 030

# MOMENT COEFF - NORMAL 90 FT/SEC NOMINAL



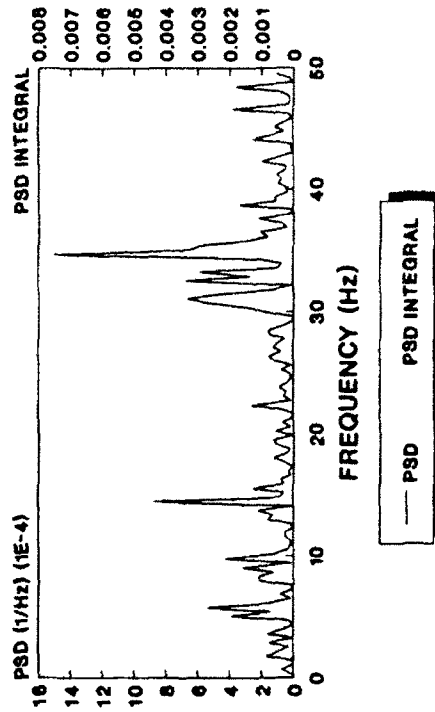
CUBE - HT 8.31 - THETA 46 - AZ 030

# MOMENT COEFF - NORMAL 120 FT/SEC NOMINAL



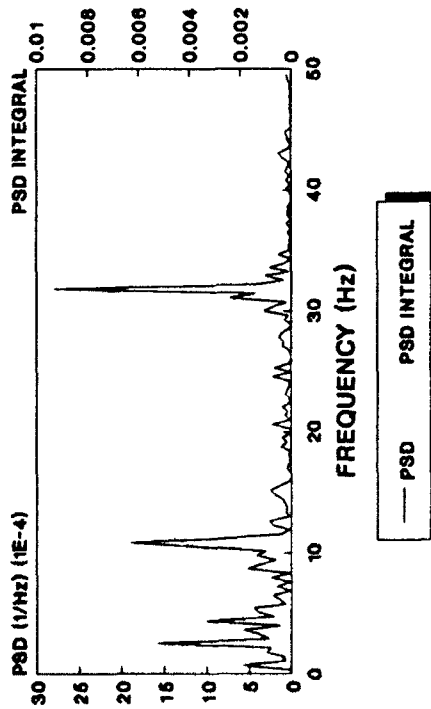
CUBE - HT 8.31 - THETA 46 - AZ 030

# MOMENT COEFF - NORMAL 180 FT/SEC NOMINAL



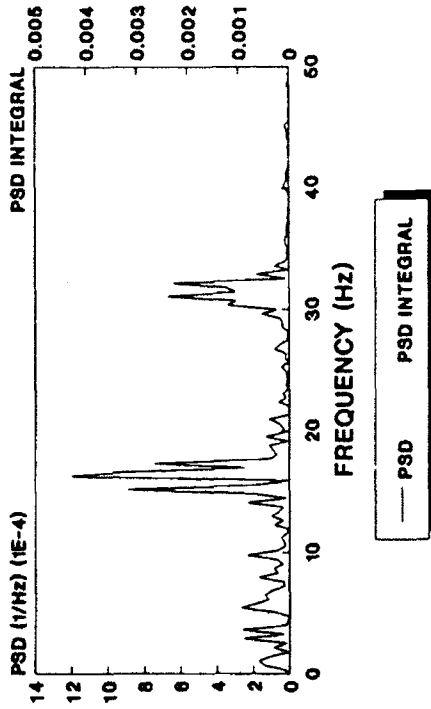
CUBE - HT 8.31 - THETA 46 - AZ 030

# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



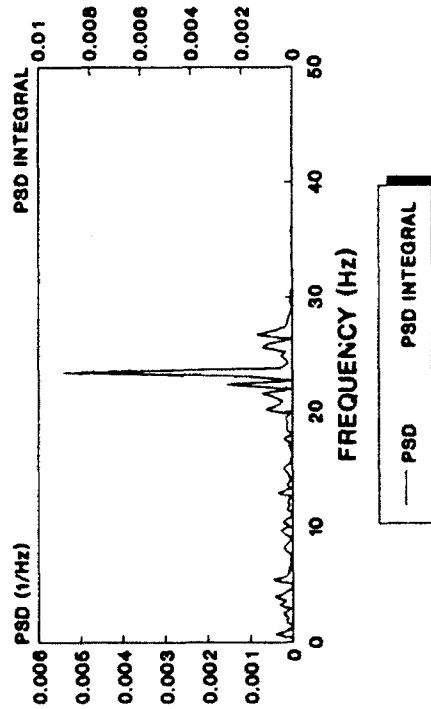
CUBE - HT 8.31 - THETA 46 - AZ 030

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



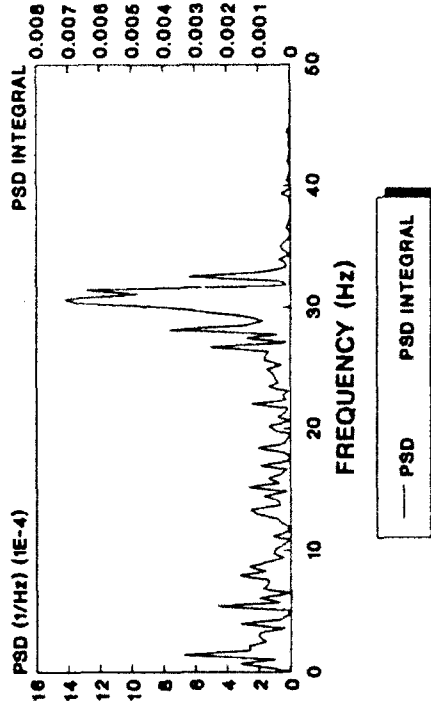
CUBE - HT 8.31 - THETA 46 - AZ 030

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



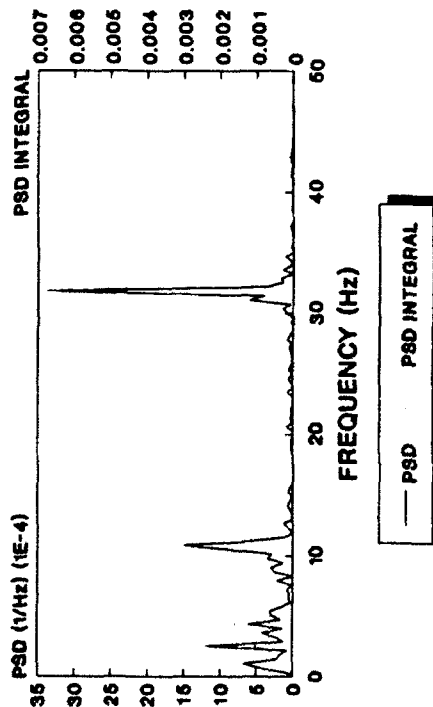
CUBE - HT 8.31 - THETA 46 - AZ 030

# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



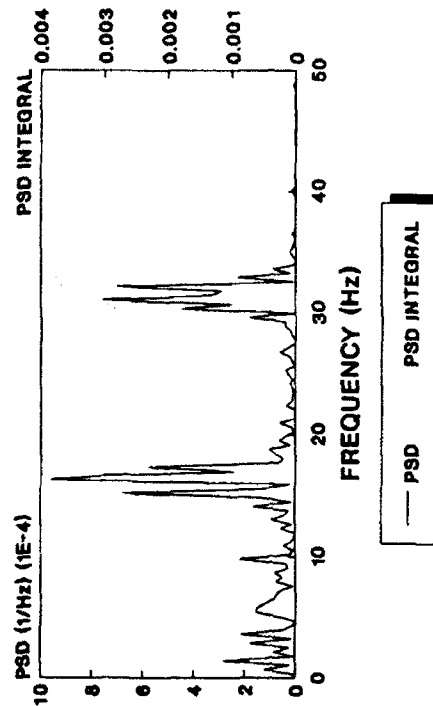
CUBE - HT 8.31 - THETA 46 - AZ 030

# MOMENT COEFF - LATERAL 60 FT/SEC NOMINAL



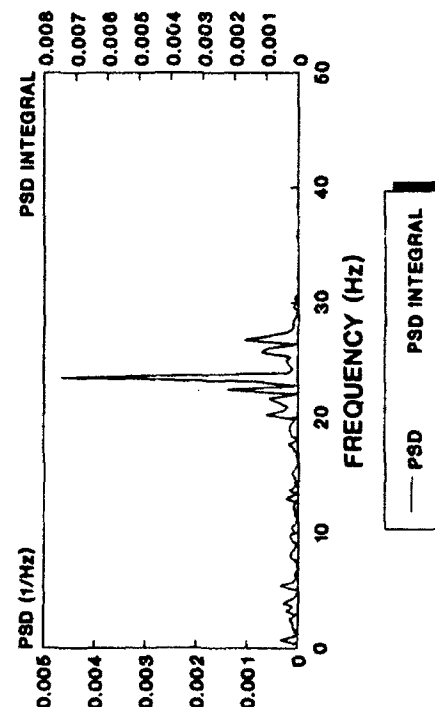
CUBE - HT 8.31 - THETA 45 - AZ 030

# MOMENT COEFF - LATERAL 90 FT/SEC NOMINAL



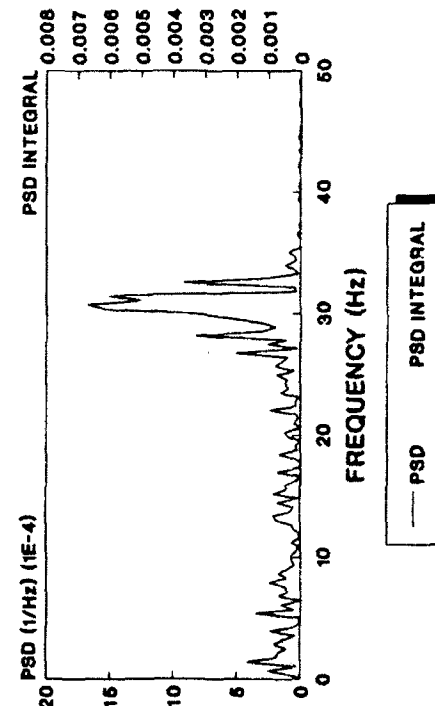
CUBE - HT 8.31 - THETA 45 - AZ 030

# MOMENT COEFF - LATERAL 120 FT/SEC NOMINAL



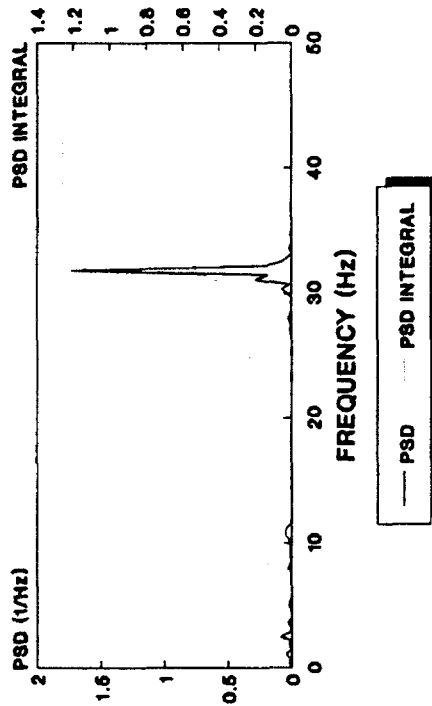
CUBE - HT 8.31 - THETA 45 - AZ 030

# MOMENT COEFF - LATERAL 180 FT/SEC NOMINAL



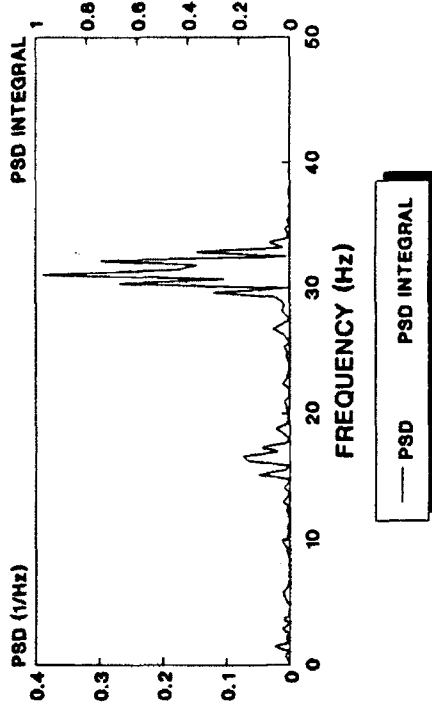
CUBE - HT 8.31 - THETA 45 - AZ 030

# MOMENT COEFF - ROLL 60 FT/SEC NOMINAL



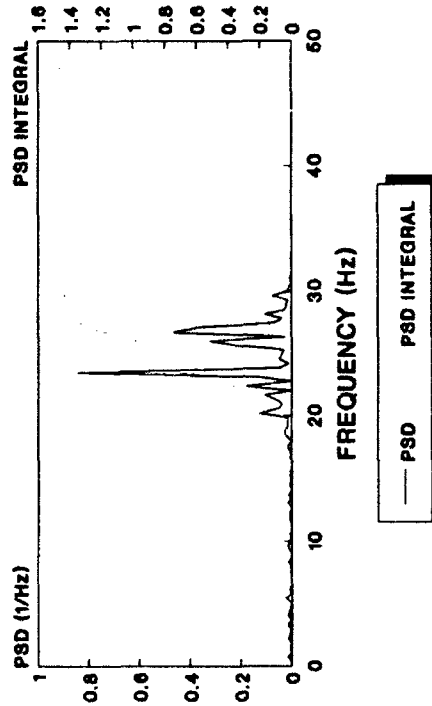
CUBE - HT 8.31 - THETA 46 - AZ 030

# MOMENT COEFF - ROLL 90 FT/SEC NOMINAL



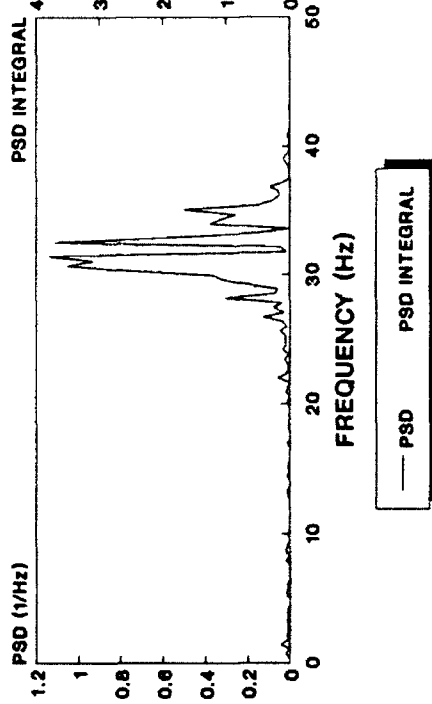
CUBE - HT 8.31 - THETA 46 - AZ 030

# MOMENT COEFF - ROLL 120 FT/SEC NOMINAL



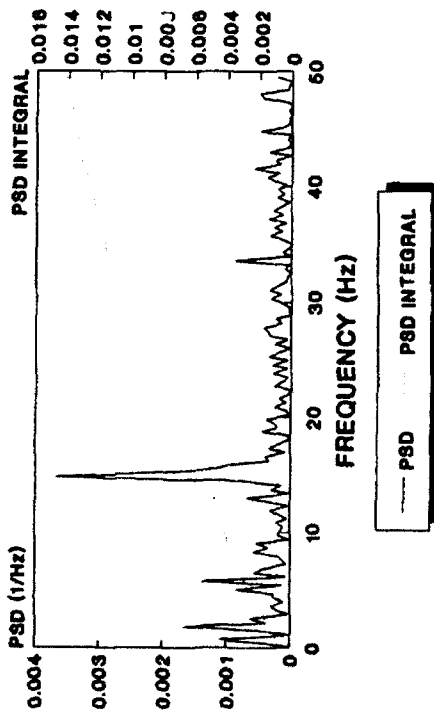
CUBE - HT 8.31 - THETA 46 - AZ 030

# MOMENT COEFF - ROLL 180 FT/SEC NOMINAL



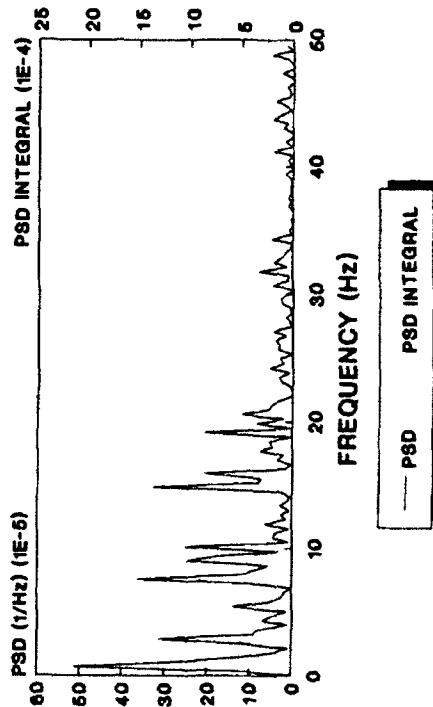
CUBE - HT 8.31 - THETA 46 - AZ 030

# FORCE COEFF - NORMAL 60 FT/SEC NOMINAL



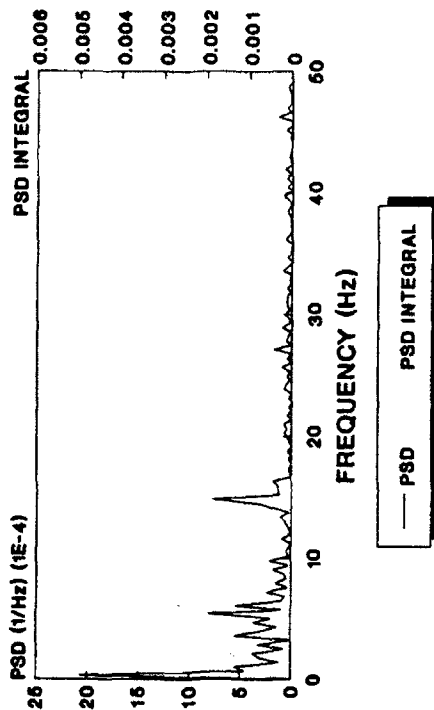
CUBE - HT 8.31 - THETA 45 - AZ 045

# FORCE COEFF - NORMAL 120 FT/SEC NOMINAL



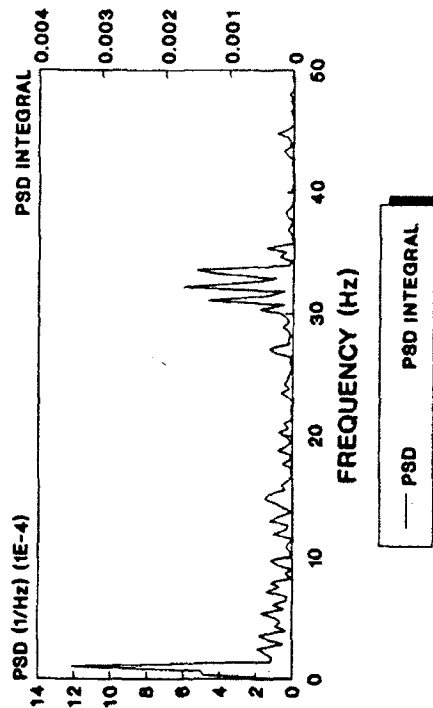
CUBE - HT 8.31 - THETA 45 - AZ 045

# FORCE COEFF - NORMAL 90 FT/SEC NOMINAL



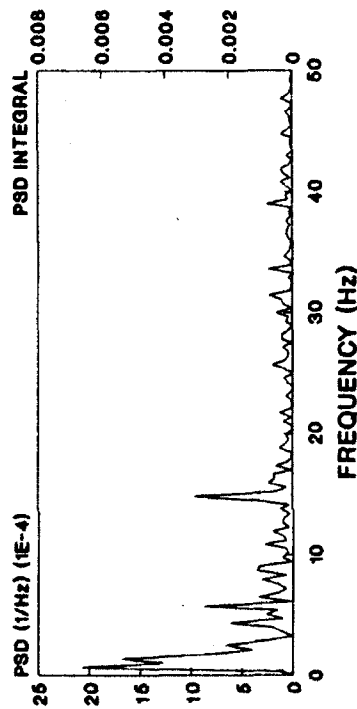
CUBE - HT 8.31 - THETA 45 - AZ 045

# FORCE COEFF - NORMAL 180 FT/SEC NOMINAL



CUBE - HT 8.31 - THETA 45 - AZ 045

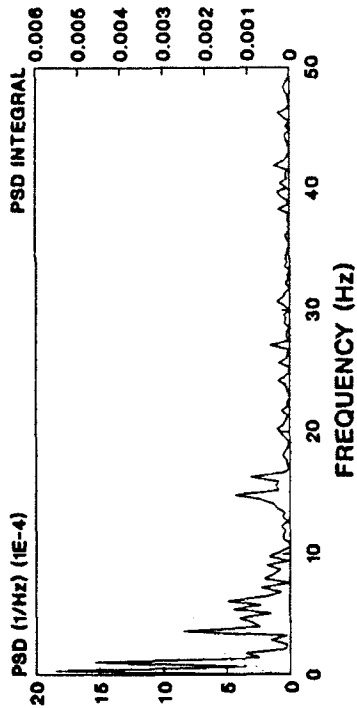
# MOMENT COEFF - NORMAL 60 FT/SEC NOMINAL



— PSD    PSD INTEGRAL

CUBE - HT 8.31 - THETA 45 - AZ 045

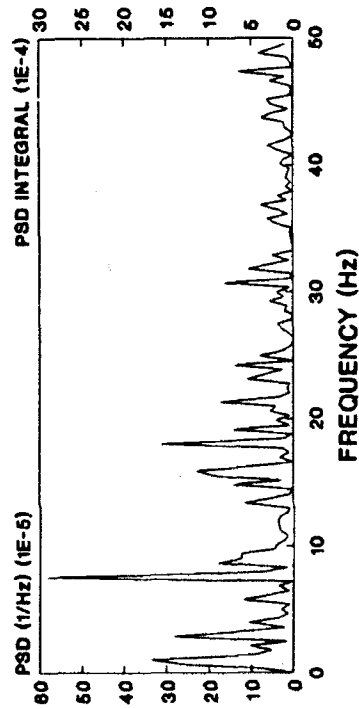
# MOMENT COEFF - NORMAL 90 FT/SEC NOMINAL



— PSD    PSD INTEGRAL

CUBE - HT 8.31 - THETA 45 - AZ 045

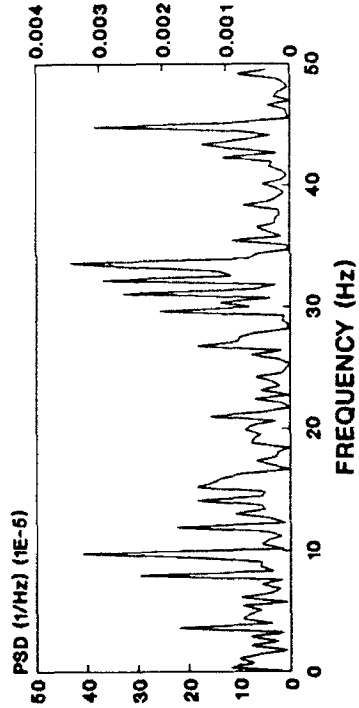
# MOMENT COEFF - NORMAL 120 FT/SEC NOMINAL



— PSD    PSD INTEGRAL

CUBE - HT 8.31 - THETA 45 - AZ 045

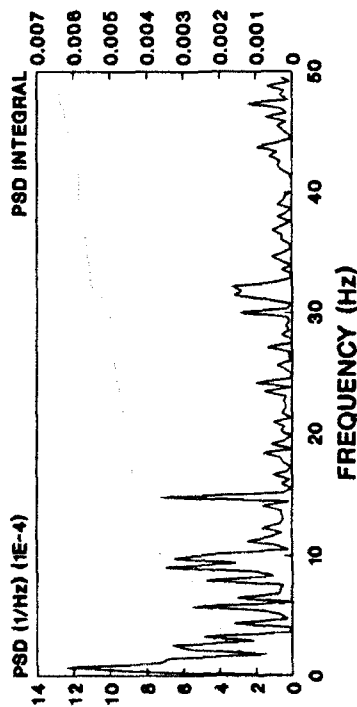
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— PSD    PSD INTEGRAL

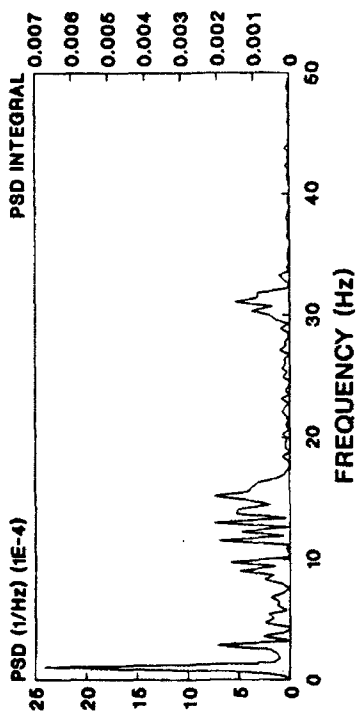
CUBE - HT 8.31 - THETA 45 - AZ 045

# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



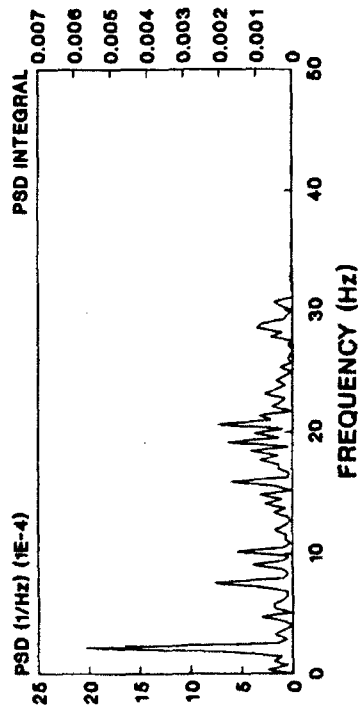
CUBE - HT 8.31 - THETA 45 - AZ 045

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



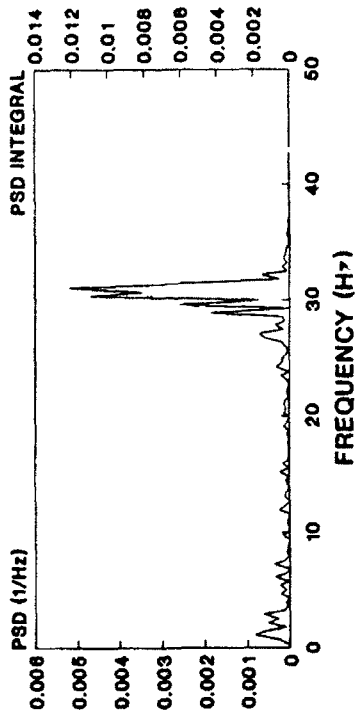
CUBE - HT 8.31 - THETA 45 - AZ 045

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



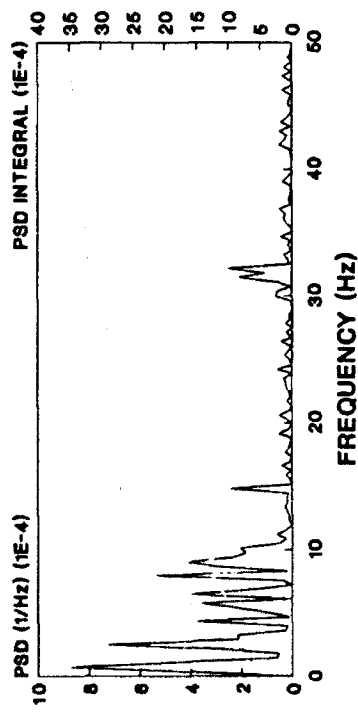
CUBE - HT 8.31 - THETA 45 - AZ 045

# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



CUBE - HT 8.31 - THETA 45 - AZ 045

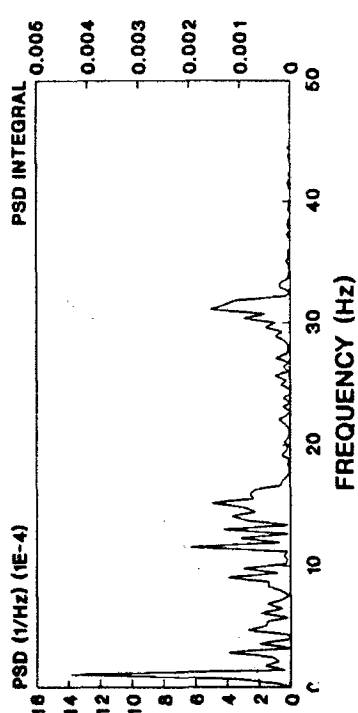
# MOMENT COEFF - LATERAL 60 FT/SEC NOMINAL



— PSD  
- - - PSD INTEGRAL

CUBE - HT 8.31 - THETA 45 - AZ 045

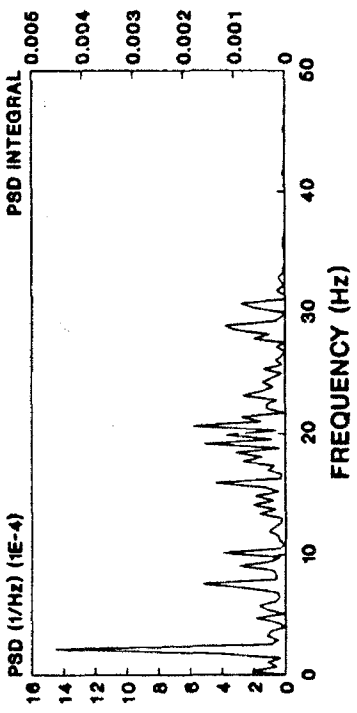
# MOMENT COEFF - LATERAL 90 FT/SEC NOMINAL



— PSD  
- - - PSD INTEGRAL

CUBE - HT 8.31 - THETA 45 - AZ 045

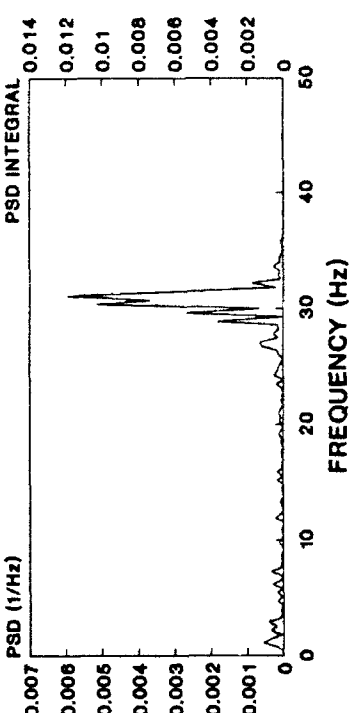
# MOMENT COEFF - LATERAL 120 FT/SEC NOMINAL



— PSD  
- - - PSD INTEGRAL

CUBE - HT 8.31 - THETA 45 - AZ 045

# MOMENT COEFF - LATERAL 180 FT/SEC NOMINAL

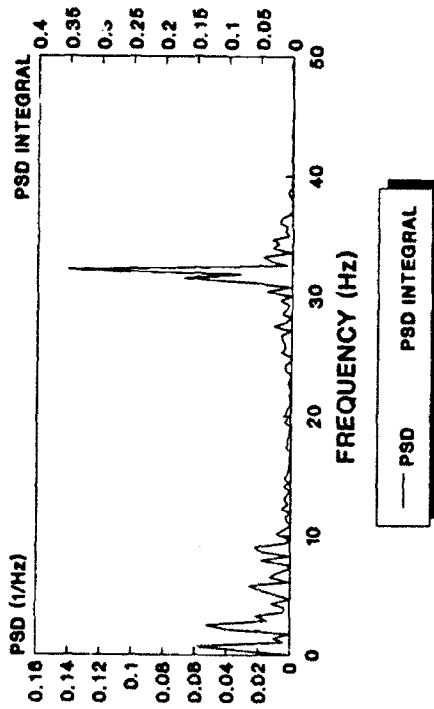


— PSD  
- - - PSD INTEGRAL

CUBE - HT 8.31 - THETA 45 - AZ 045

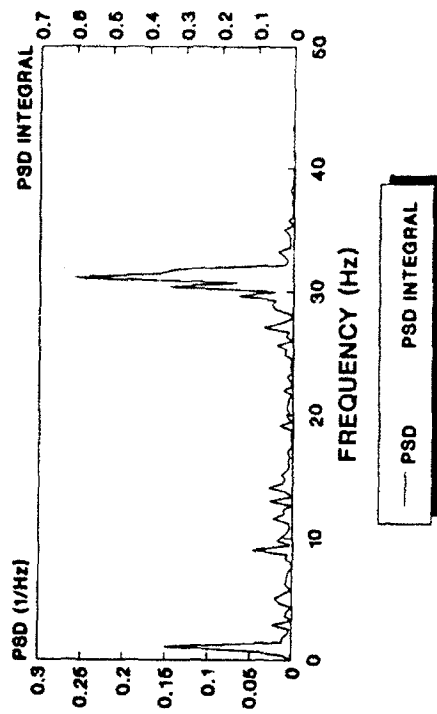


# MOMENT COEFF - ROLL 60 FT/SEC NOMINAL



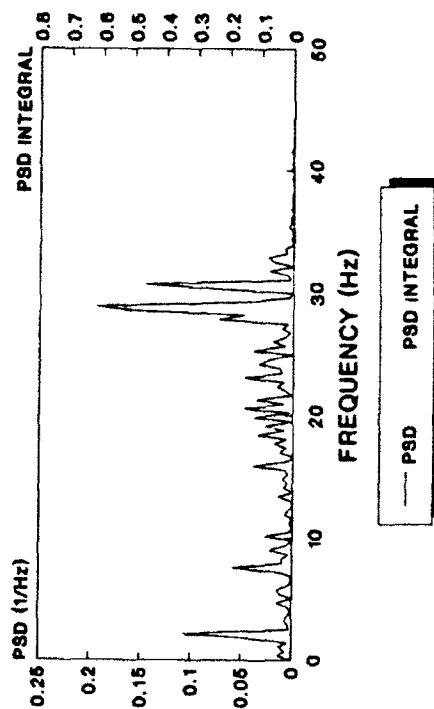
CUBE - HT 8.31 - THETA 45 - AZ 046

# MOMENT COEFF - ROLL 90 FT/SEC NOMINAL



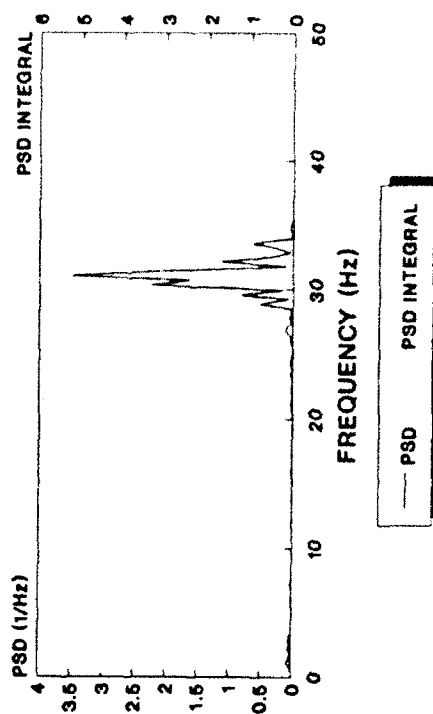
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# MOMENT COEFF - ROLL 120 FT/SEC NOMINAL



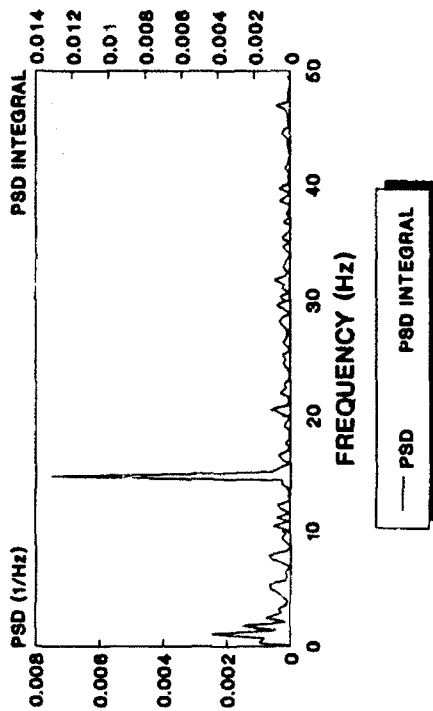
CUBE - HT 8.31 - THETA 45 - AZ 046

# MOMENT COEFF - ROLL 180 FT/SEC NOMINAL



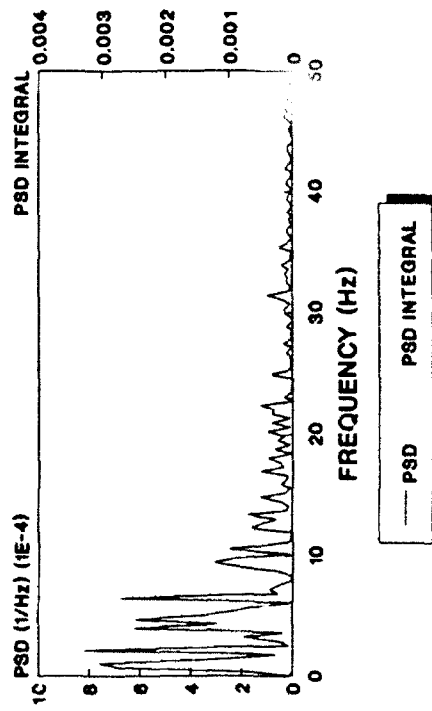
CUBE - HT 8.31 - THETA 45 - AZ 046

# FORCE COEFF - NORMAL 60 FT/SEC NOMINAL



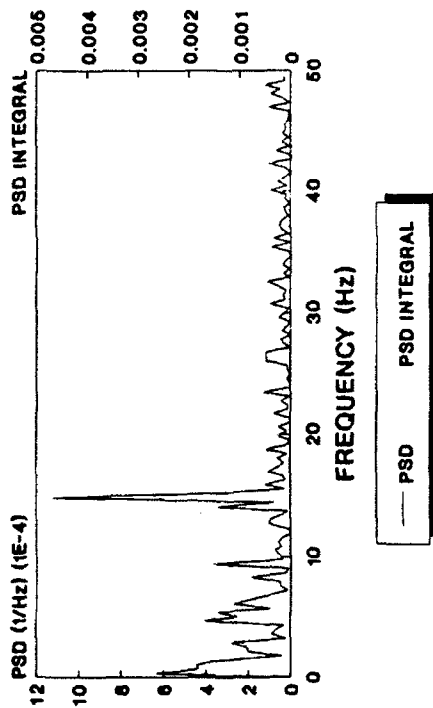
CUBE - HT 8.31 - THETA 46 - AZ 060

# FORCE COEFF - NORMAL 120 FT/SEC NOMINAL



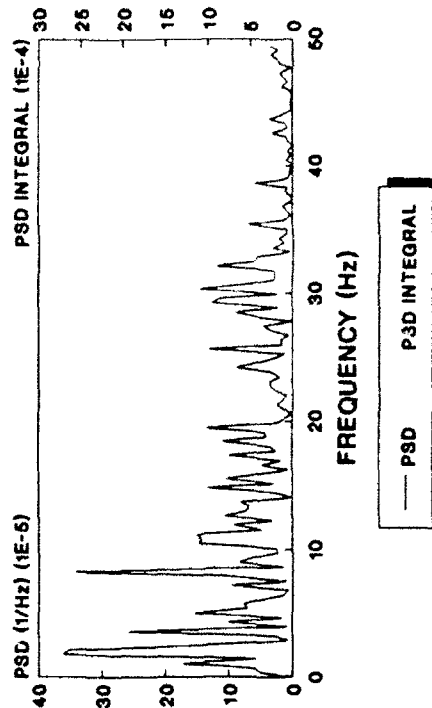
CUBE - HT 8.31 - THETA 46 - AZ 060

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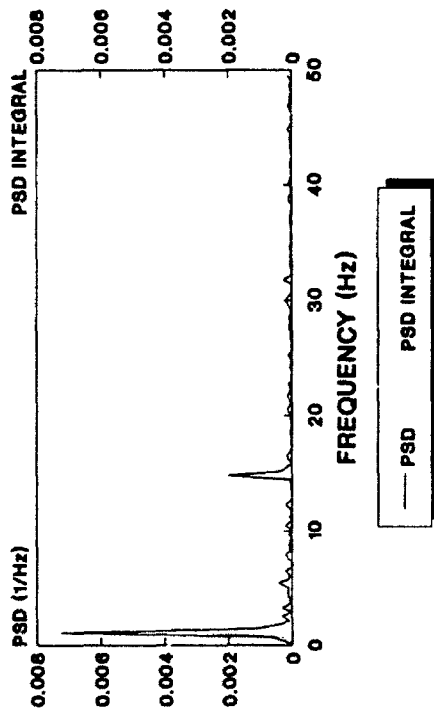
CUBE - HT 8.31 - THETA 46 - AZ 060

# FORCE COEFF - NORMAL 180 FT/SEC NOMINAL



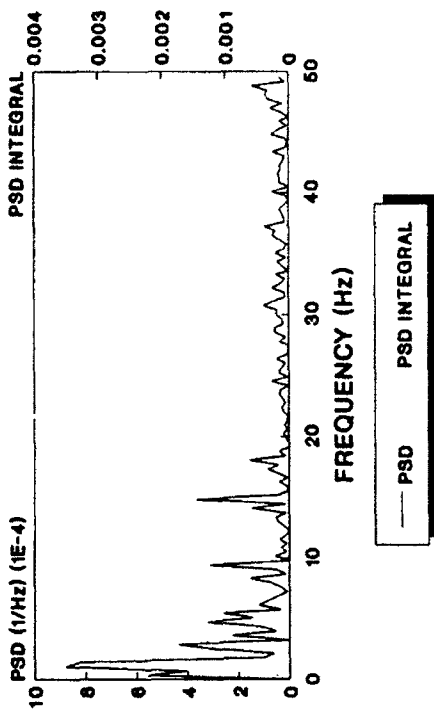
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# MOMENT COEFF - NORMAL 60 FT/SEC NOMINAL



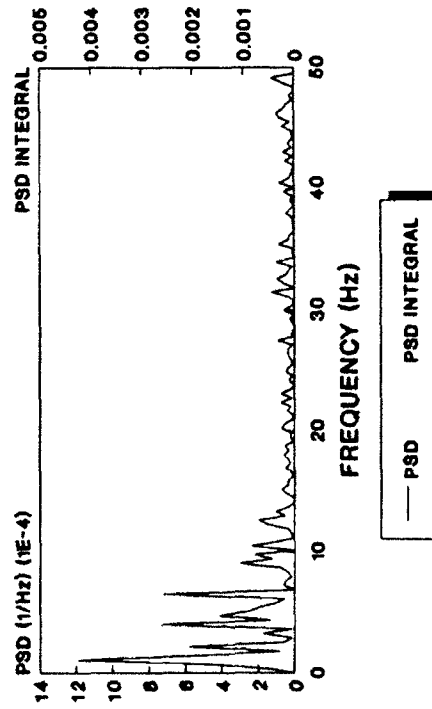
CUBE - HT 8.31 - THETA 45 - AZ 060

# MOMENT COEFF - NORMAL 90 FT/SEC NOMINAL



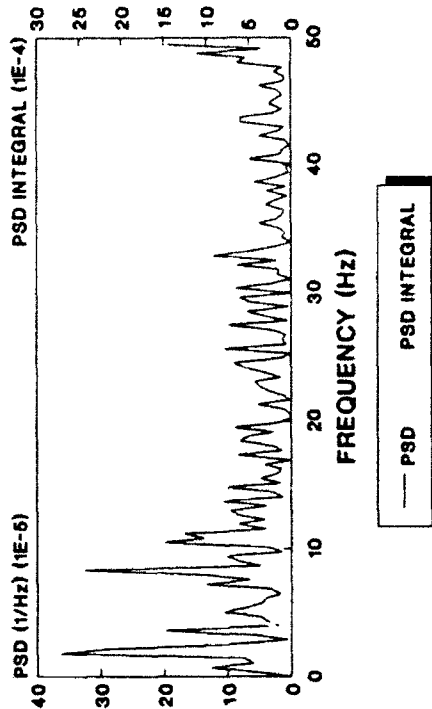
CUBE - HT 8.31 - THETA 45 - AZ 060

# MOMENT COEFF - NORMAL 120 FT/SEC NOMINAL



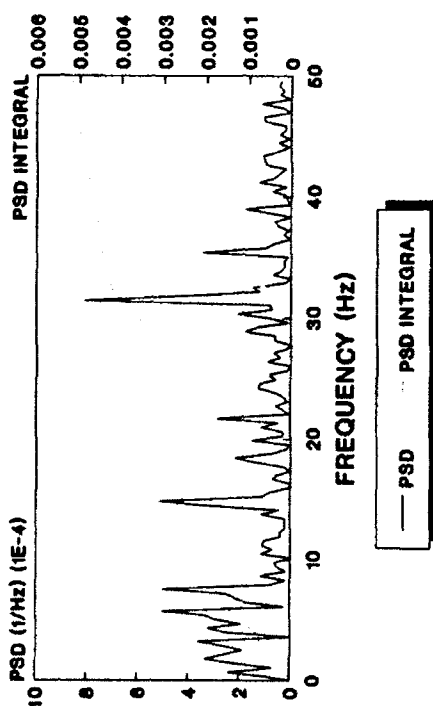
CUBE - HT 8.31 - THETA 45 - AZ 060

# MOMENT COEFF - NORMAL 180 FT/SEC NOMINAL



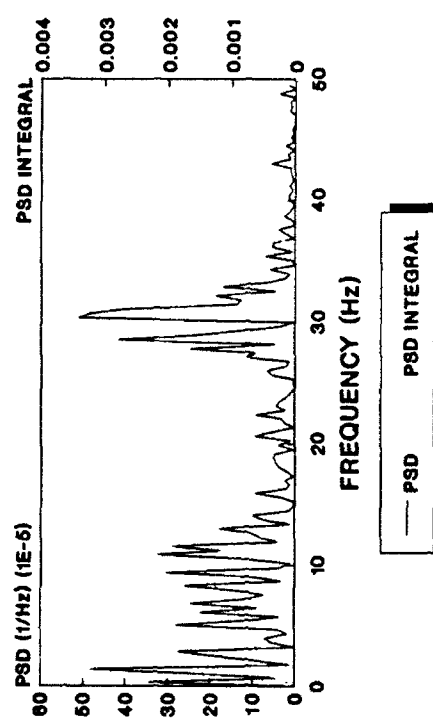
CUBE - HT 8.31 - THETA 45 - AZ 060

# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



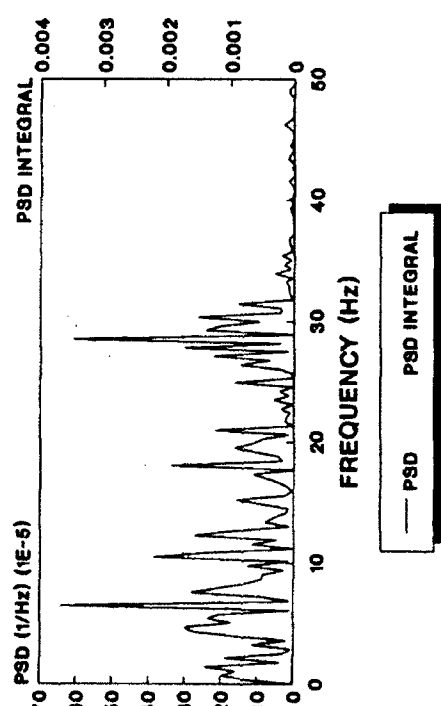
CUBE - HT 8.31 - THETA 46 - AZ 060

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



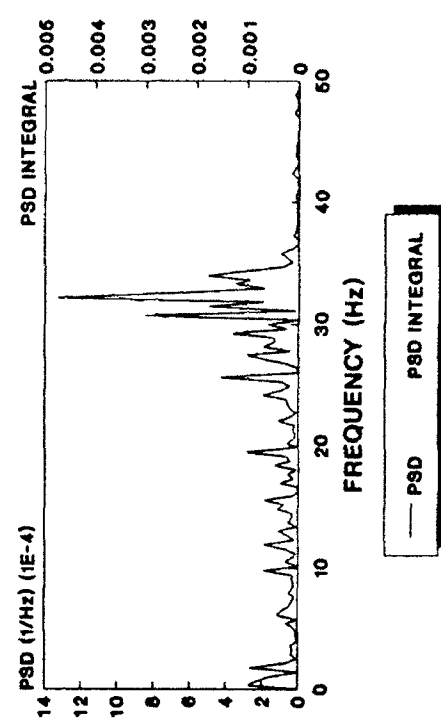
CUBE - HT 8.31 - THETA 46 - AZ 060

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



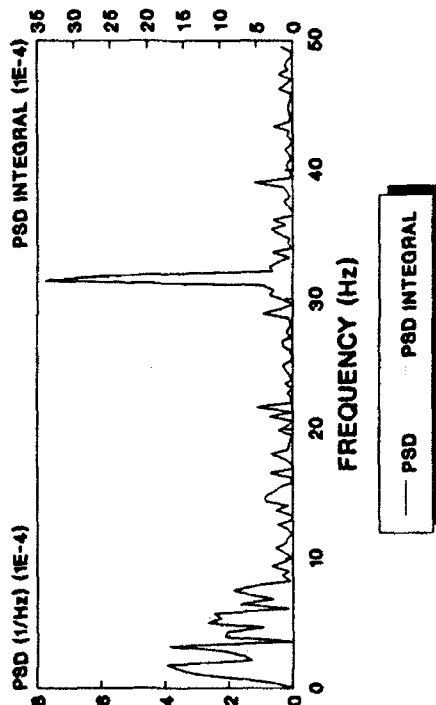
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# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



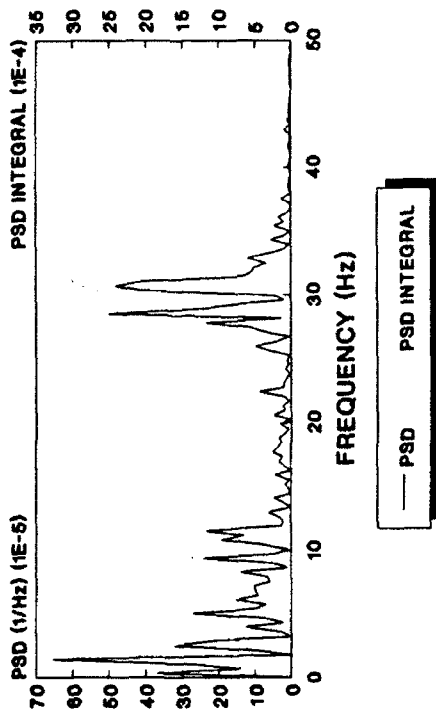
CUBE - HT 8.31 - THETA 46 - AZ 060

# MOMENT COEFF - LATERAL 60 FT/SEC NOMINAL



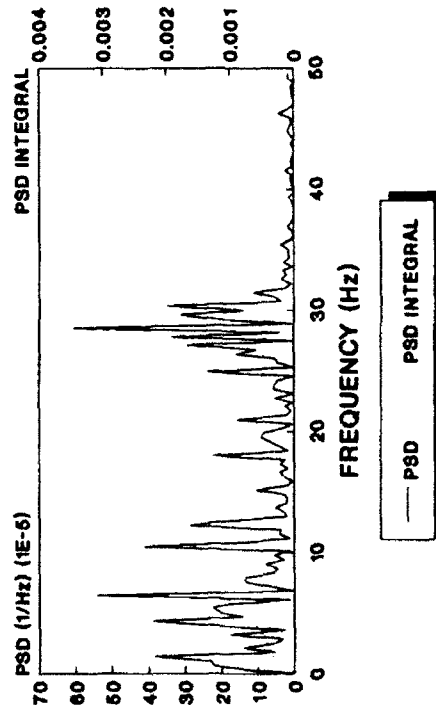
CUBE - HT 8.31 - THETA 48 - AZ 060

# MOMENT COEFF - LATERAL 90 FT/SEC NOMINAL



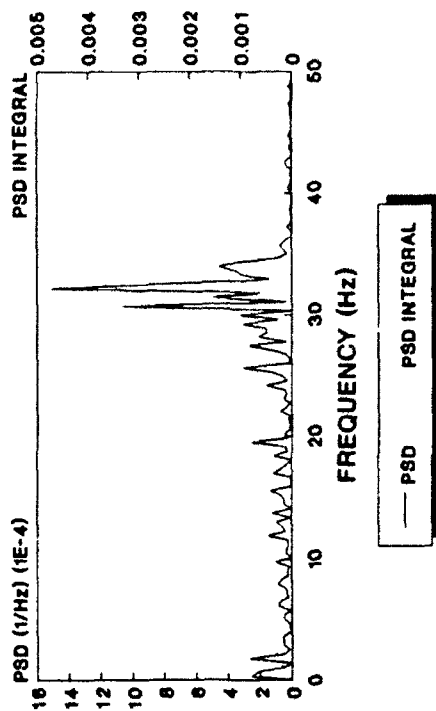
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# MOMENT COEFF - LATERAL 120 FT/SEC NOMINAL



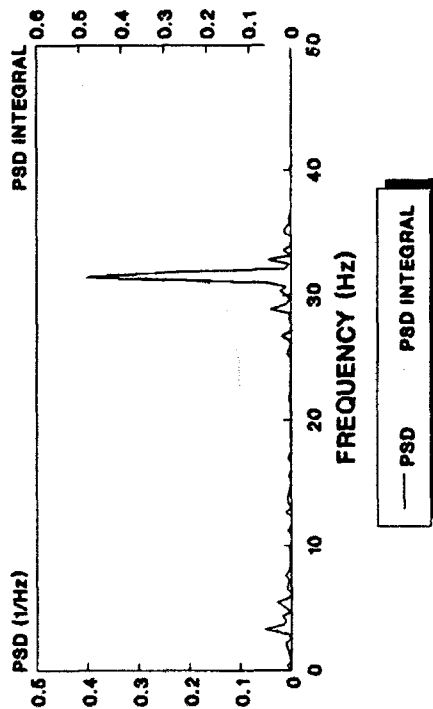
CUBE - HT 8.31 - THETA 48 - AZ 060

# MOMENT COEFF - LATERAL 180 FT/SEC NOMINAL



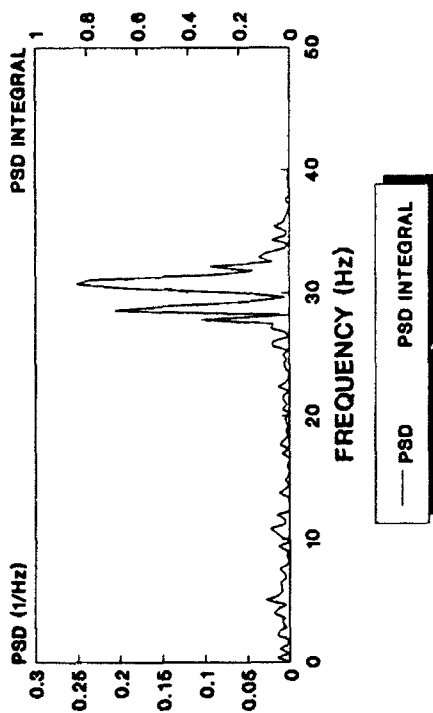
CUBE - HT 8.31 - THETA 48 - AZ 060

# MOMENT COEFF - ROLL 60 FT/SEC NOMINAL



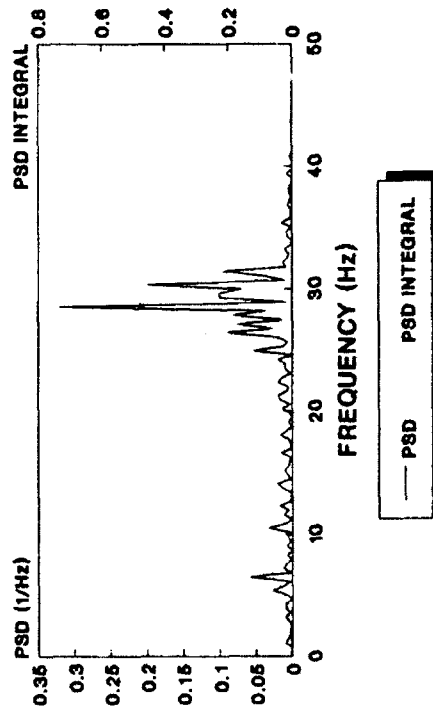
CUBE - HT 8.31 - THETA 45 - AZ 060

# MOMENT COEFF - ROLL 90 FT/SEC NOMINAL



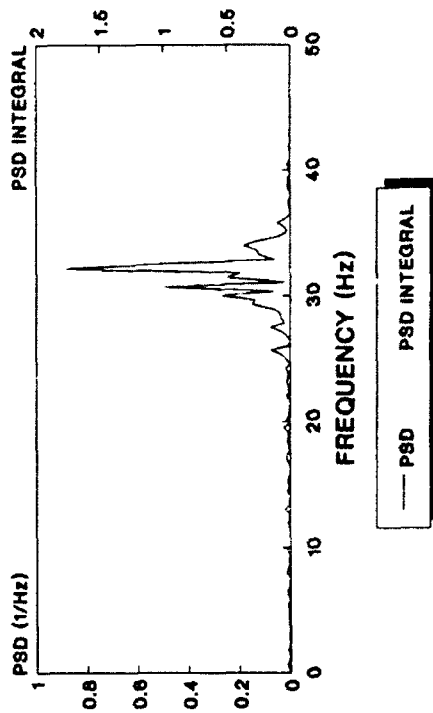
CUBE - HT 8.31 - THETA 45 - AZ 060

# MOMENT COEFF - ROLL 120 FT/SEC NOMINAL



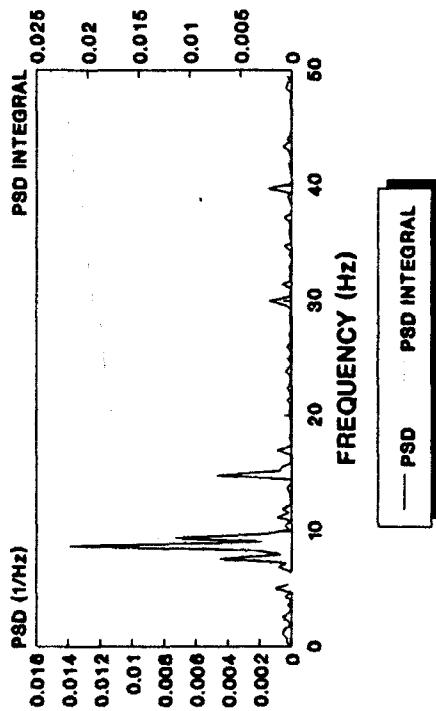
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# MOMENT COEFF - ROLL 180 FT/SEC NOMINAL



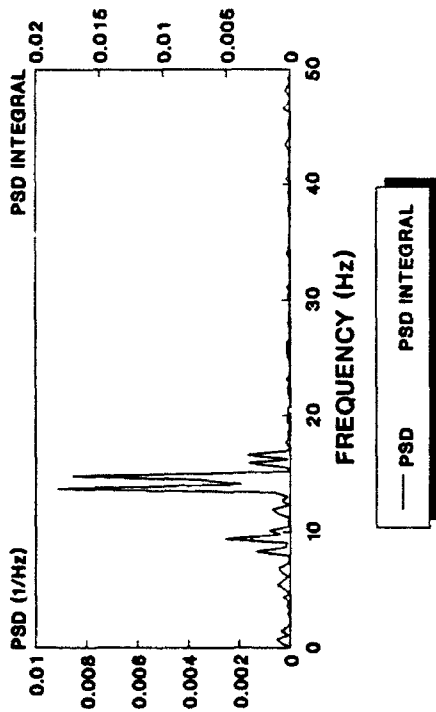
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# FORCE COEFF - NORMAL 60 FT/SEC NOMINAL



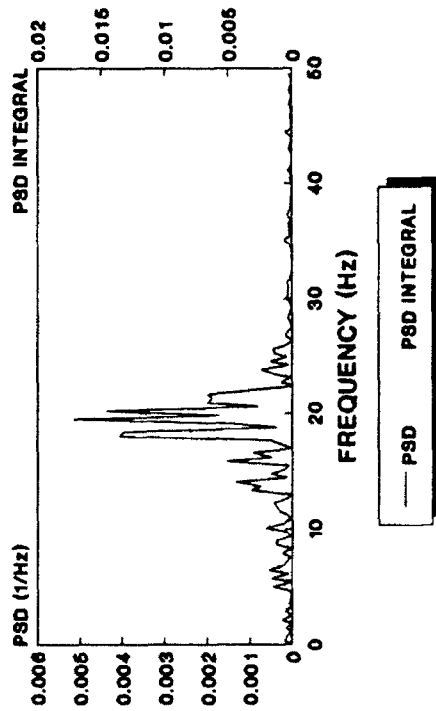
CUBE - HT 8.31 - THETA 45 - AZ 090

# FORCE COEFF - NORMAL 90 FT/SEC NOMINAL



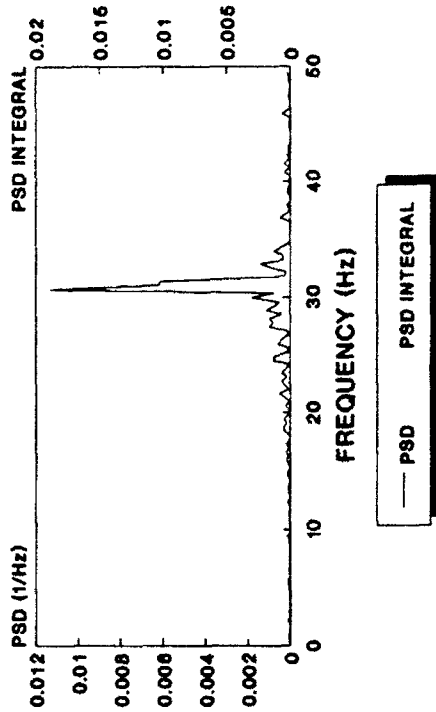
CUBE - HT 8.31 - THETA 45 - AZ 090

# FORCE COEFF - NORMAL 120 FT/SEC NOMINAL



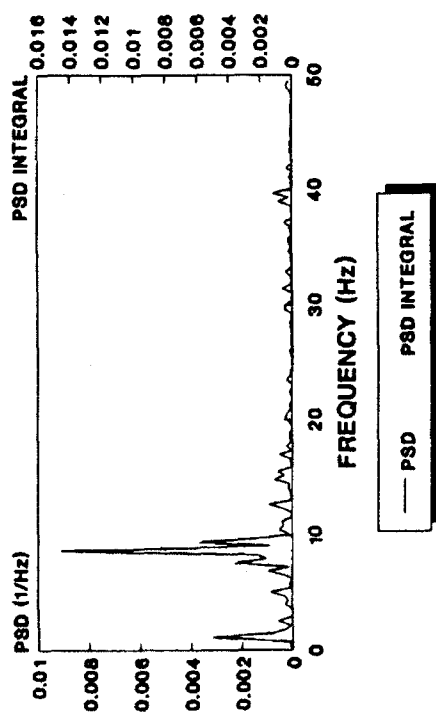
CUBE - HT 8.31 - THETA 45 - AZ 090

# FORCE COEFF - NORMAL 180 FT/SEC NOMINAL



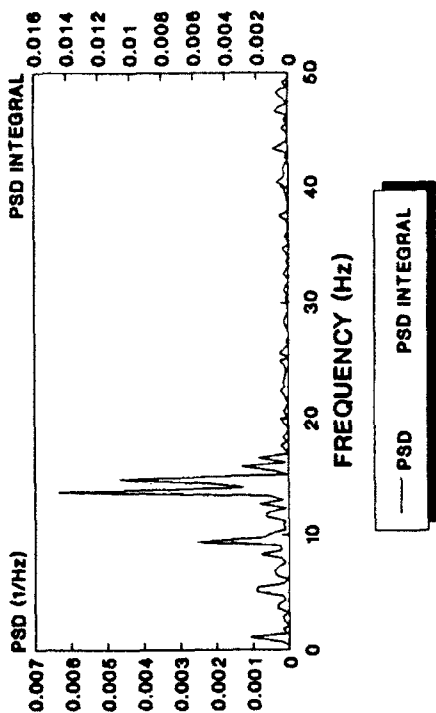
CUBE - HT 8.31 - THETA 45 - AZ 090

# MOMENT COEFF - NORMAL 60 FT/SEC NOMINAL



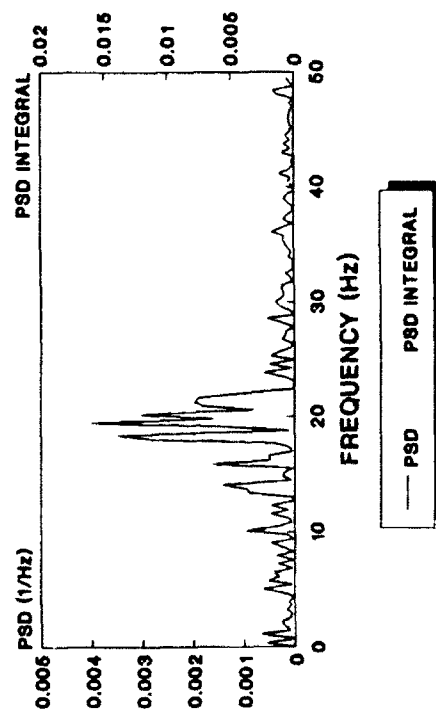
CUBE - HT 8.31 - THETA 45 - AZ 090

# MOMENT COEFF - NORMAL 90 FT/SEC NOMINAL



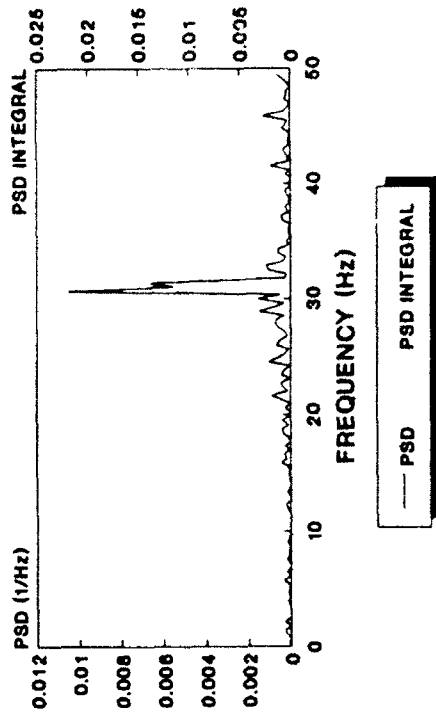
CUBE - HT 8.31 - THETA 45 - AZ 090

# MOMENT COEFF - NORMAL 120 FT/SEC NOMINAL



CUBE - HT 8.31 - THETA 45 - AZ 090

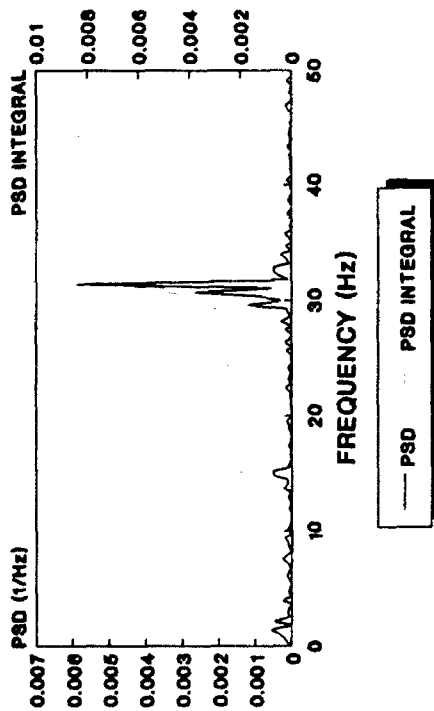
# MOMENT COEFF - NORMAL 180 FT/SEC NOMINAL



CUBE - HT 8.31 - THETA 45 - AZ 090

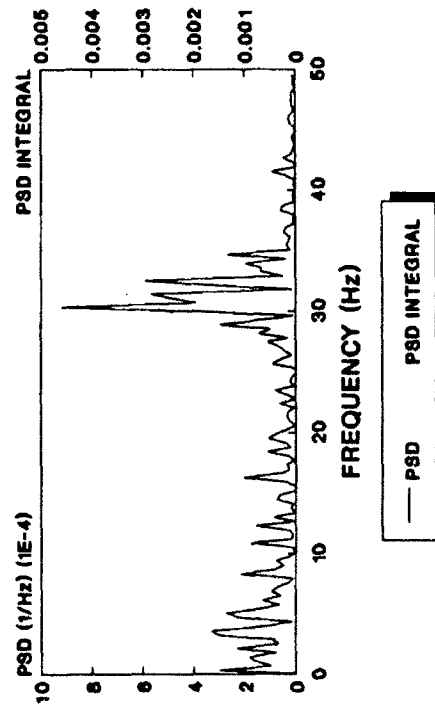


# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



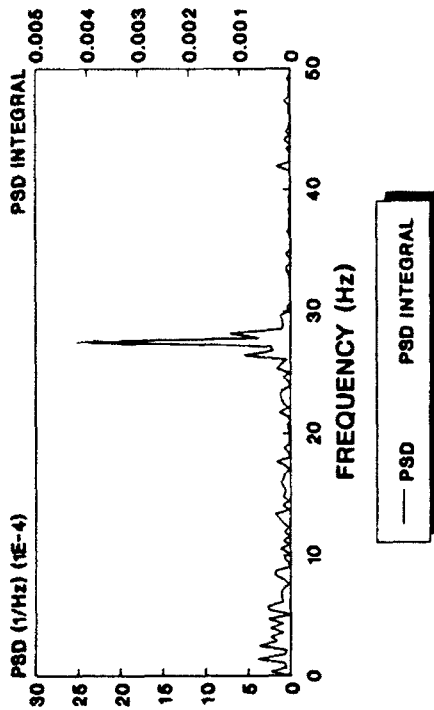
CUBE - HT 8.31 - THETA 45 - AZ 090

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



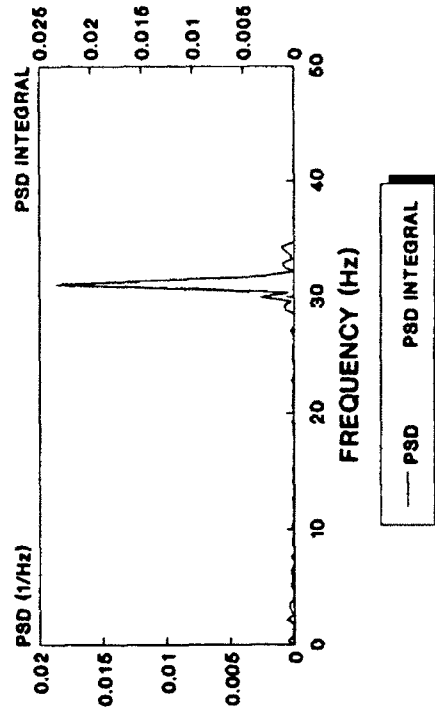
CUBE - HT 8.31 - THETA 45 - AZ 090

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



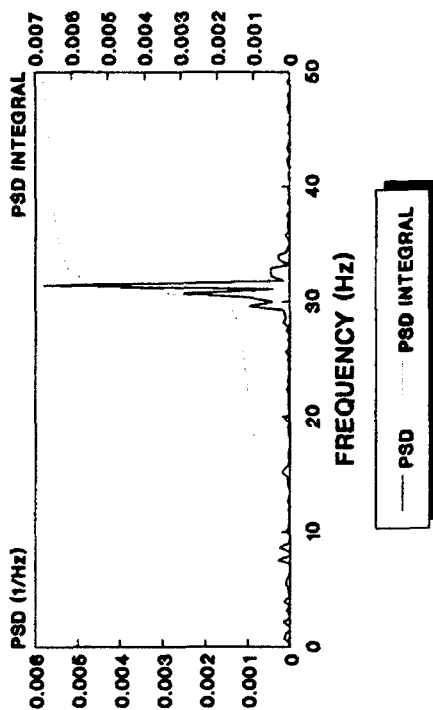
CUBE - HT 8.31 - THETA 45 - AZ 090

# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



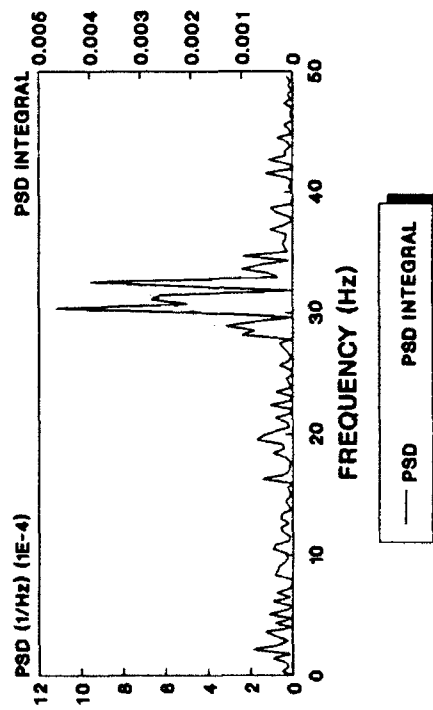
CUBE - HT 8.31 - THETA 45 - AZ 090

# MOMENT COEFF - LATERAL 60 FT/SEC NOMINAL



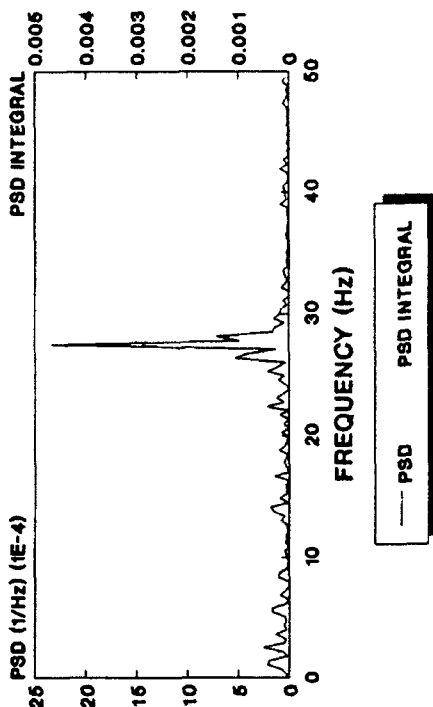
CUBE - HT 8.31 - THETA 45 - AZ 090

# MOMENT COEFF - LATERAL 120 FT/SEC NOMINAL



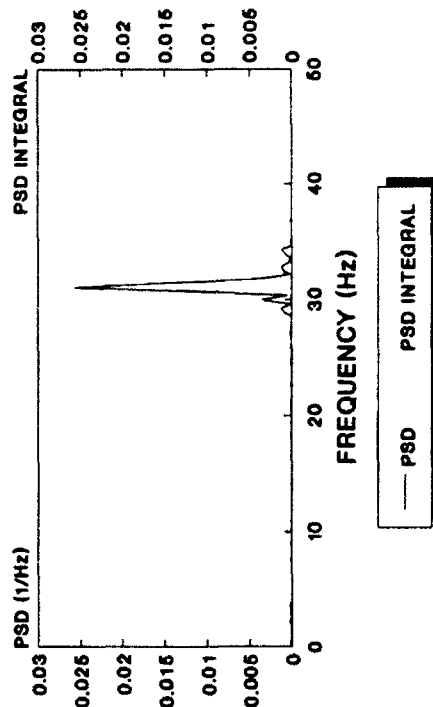
CUBE - HT 8.31 - THETA 45 - AZ 090

# MOMENT COEFF - LATERAL 90 FT/SEC NOMINAL



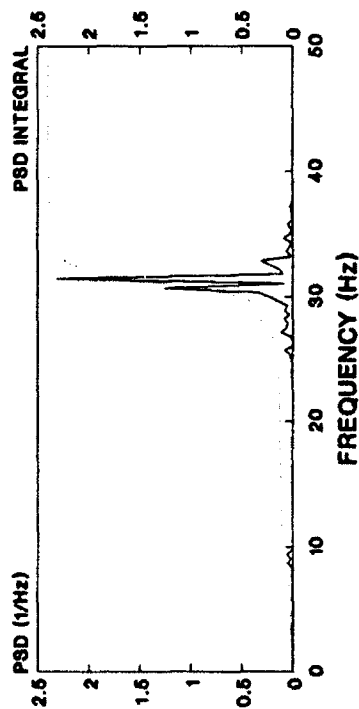
CUBE - HT 8.31 - THETA 45 - AZ 090

# MOMENT COEFF - LATERAL 180 FT/SEC NOMINAL



CUBE - HT 8.31 - THETA 45 - AZ 090

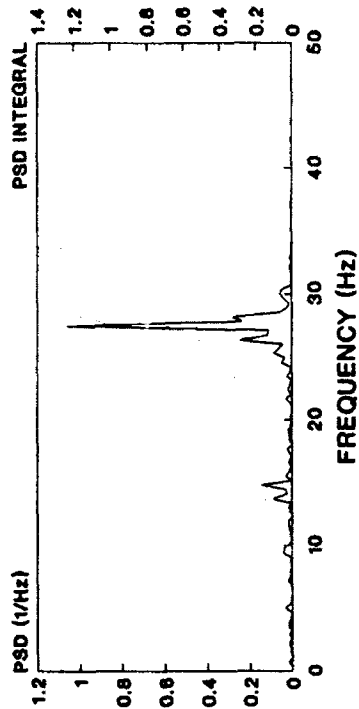
# MOMENT COEFF - ROLL 60 FT/SEC NOMINAL



— PSD — PSD INTEGRAL

CUBE - HT 8.31 - THETA 45 - AZ 090

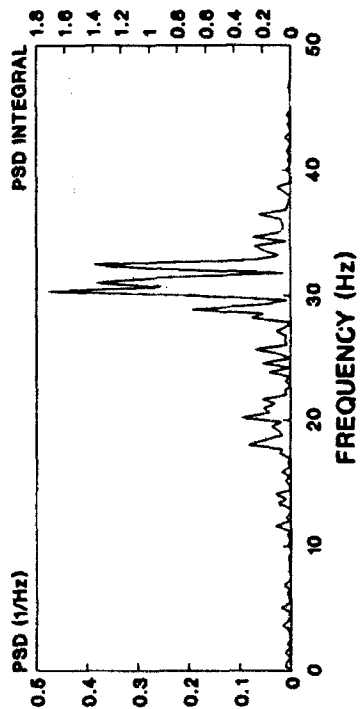
# MOMENT COEFF - ROLL 90 FT/SEC NOMINAL



— PSD — PSD INTEGRAL

CUBE - HT 8.31 - THETA 45 - AZ 090

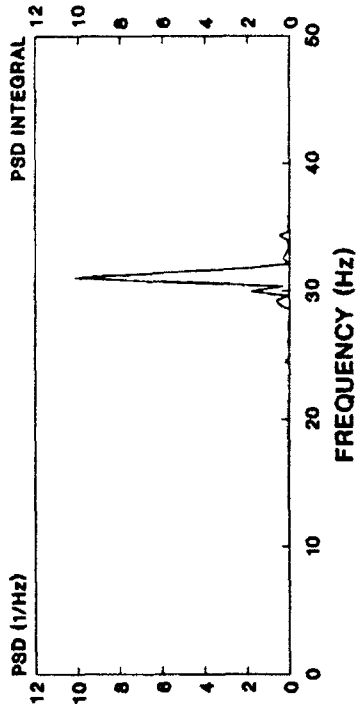
# MOMENT COEFF - ROLL 120 FT/SEC NOMINAL



— PSD — PSD INTEGRAL

CUBE - HT 8.31 - THETA 45 - AZ 090

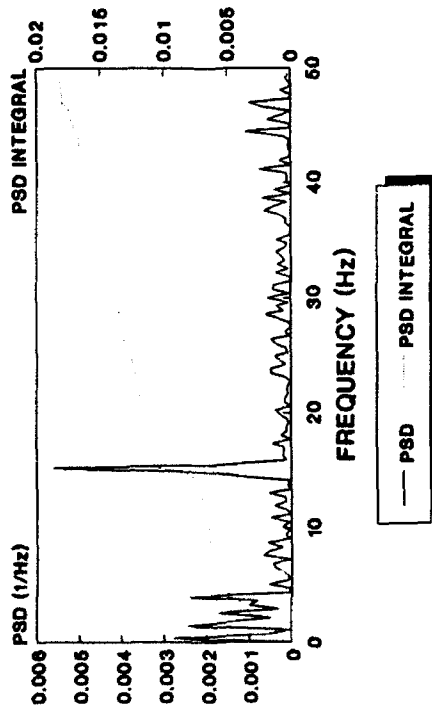
# MOMENT COEFF - ROLL 180 FT/SEC NOMINAL



— PSD — PSD INTEGRAL

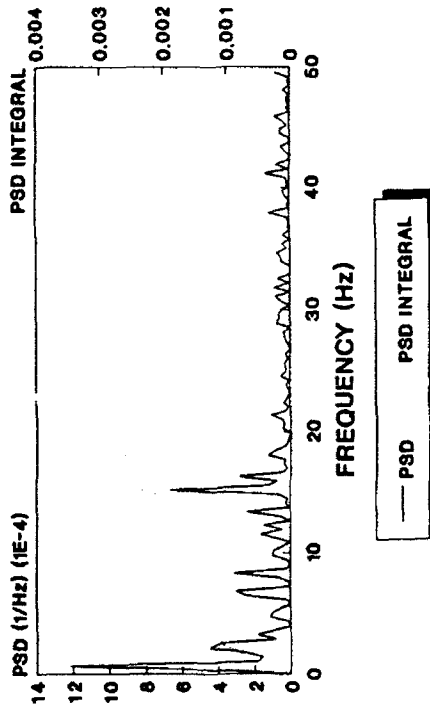
CUBE - HT 8.31 - THETA 45 - AZ 090

# FORCE COEFF - NORMAL 60 FT/SEC NOMINAL



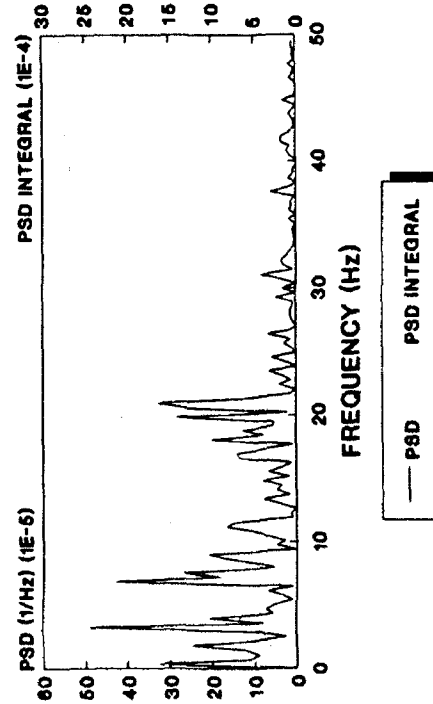
CUBE - HT 8.31 - THETA 45 - AZ 120

# FORCE COEFF - NORMAL 90 FT/SEC NOMINAL



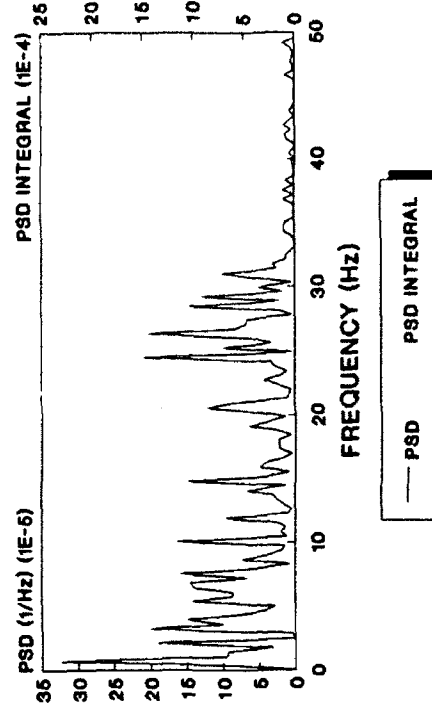
CUBE - HT 8.31 - THETA 45 - AZ 120

# FORCE COEFF - NORMAL 120 FT/SEC NOMINAL



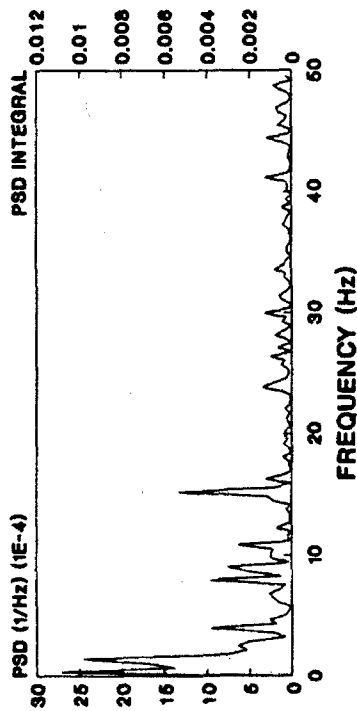
CUBE - HT 8.31 - THETA 45 - AZ 120

# FORCE COEFF - NORMAL 180 FT/SEC NOMINAL



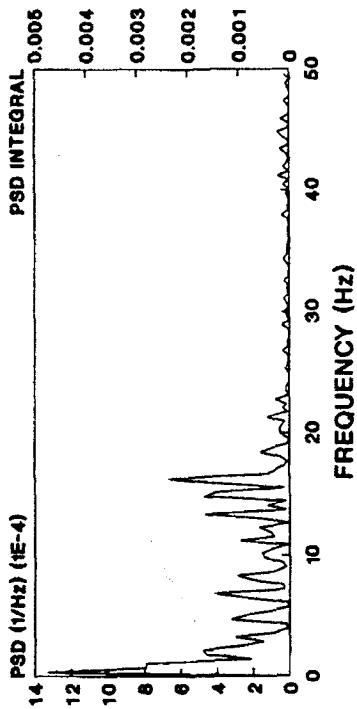
CUBE - HT 8.31 - THETA 45 - AZ 120

# **MOMENT COEFF - NORMAL** **60 FT/SEC NOMINAL**



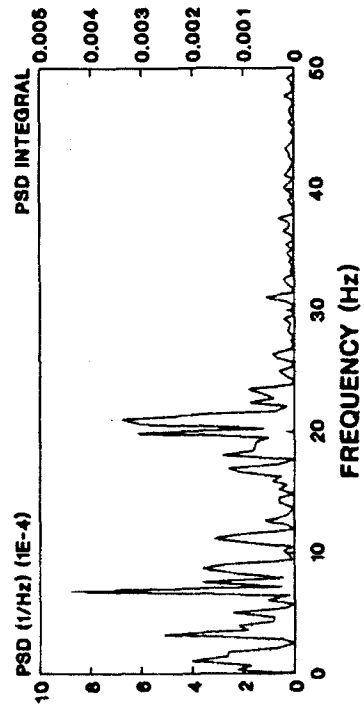
CUBE - HT 8.31 - THETA 45 - AZ 120

# **MOMENT COEFF - NORMAL** **90 FT/SEC NOMINAL**



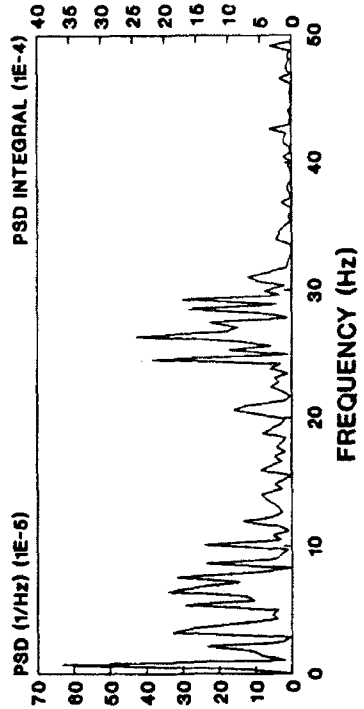
CUBE - HT 8.31 - THETA 45 - AZ 120

# **MOMENT COEFF - NORMAL** **120 FT/SEC NOMINAL**



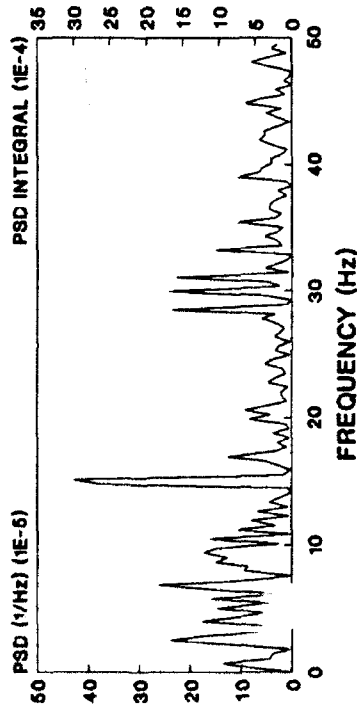
CUBE - HT 8.31 - THETA 45 - AZ 120

# **MOMENT COEFF - NORMAL** **180 FT/SEC NOMINAL**



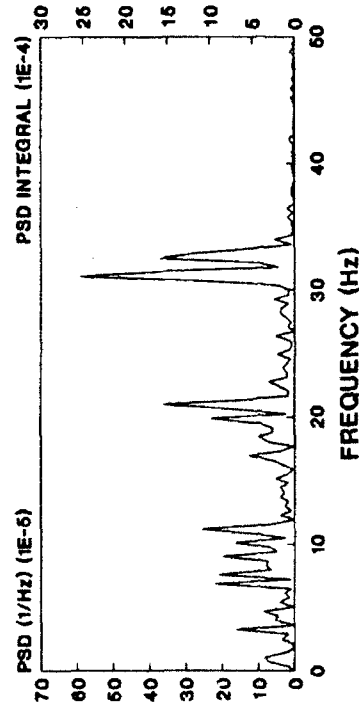
CUBE - HT 8.31 - THETA 45 - AZ 120

# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



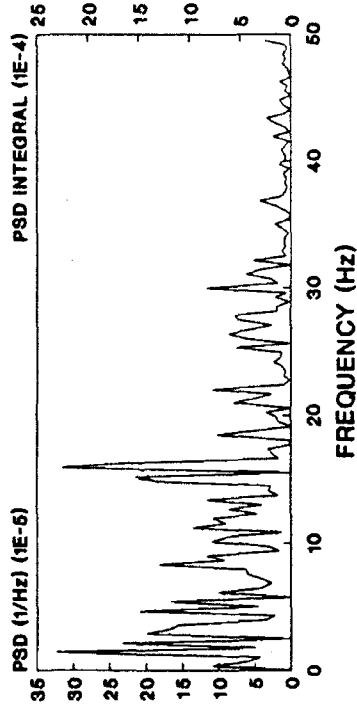
CUBE - HT 8.31 - THETA 45 - AZ 120

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



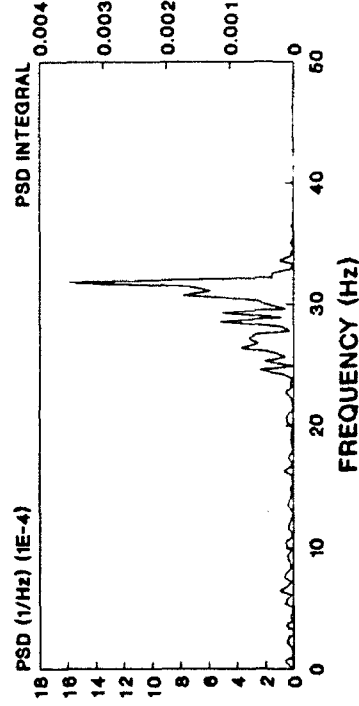
CUBE - HT 8.31 - THETA 45 - AZ 120

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



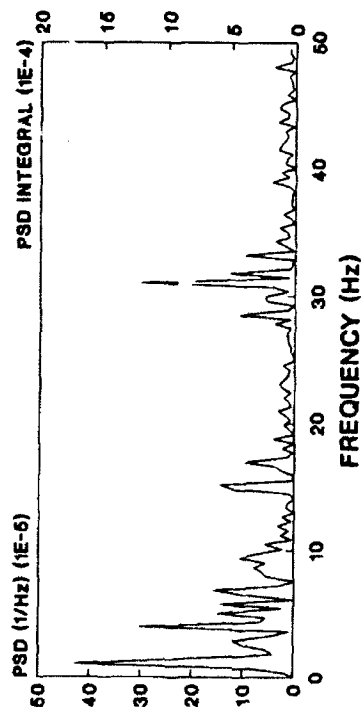
CUBE - HT 8.31 - THETA 45 - AZ 120

# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



CUBE - HT 8.31 - THETA 45 - AZ 120

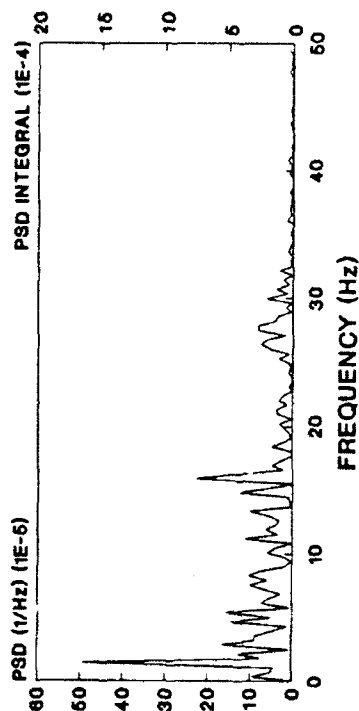
# MOMENT COEFF - LATERAL 60 FT/SEC NOMINAL



--- PSD  
— PSD INTEGRAL

CUBE - HT 8.31 - THETA 46 - AZ 120

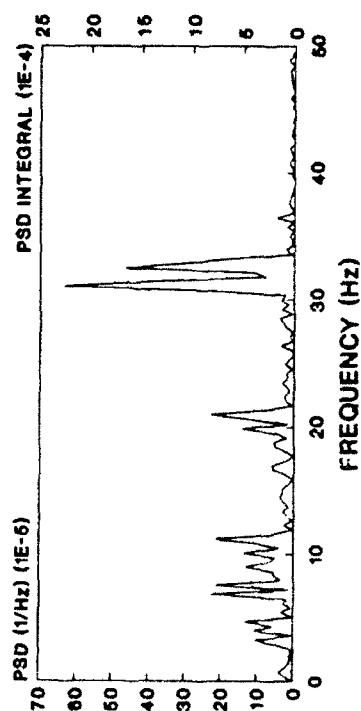
# MOMENT COEFF - LATERAL 90 FT/SEC NOMINAL



--- PSD  
— PSD INTEGRAL

CUBE - HT 8.31 - THETA 46 - AZ 120

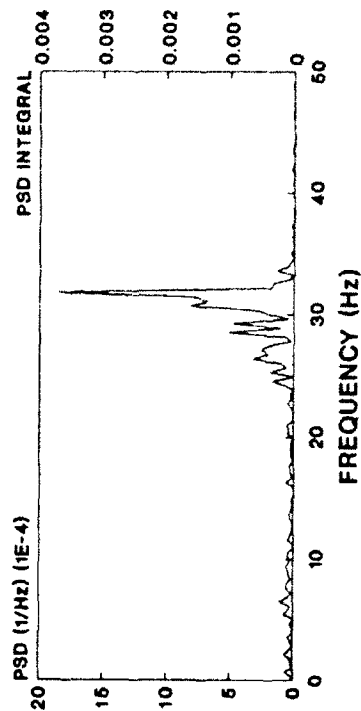
# MOMENT COEFF - LATERAL 120 FT/SEC NOMINAL



--- PSD  
— PSD INTEGRAL

CUBE - HT 8.31 - THETA 46 - AZ 120

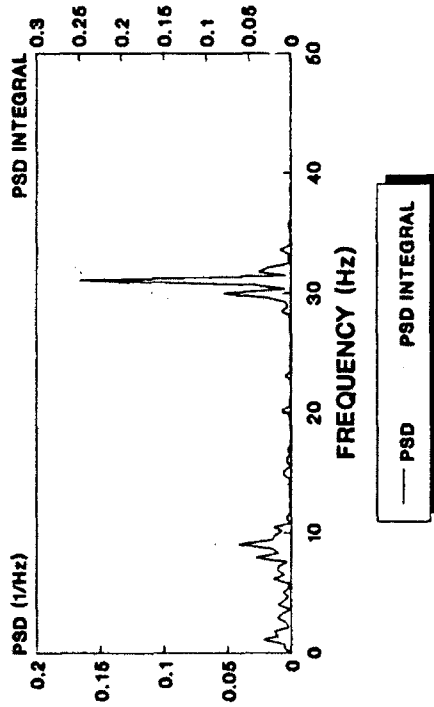
# MOMENT COEFF - LATERAL 180 FT/SEC NOMINAL



--- PSD  
— PSD INTEGRAL

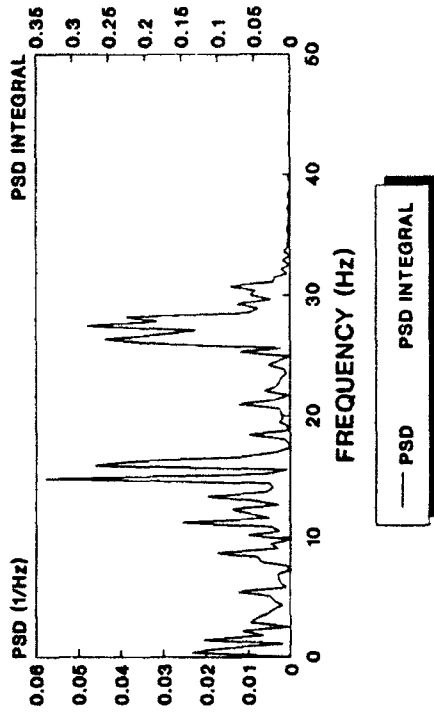
CUBE - HT 8.31 - THETA 46 - AZ 120

# MOMENT COEFF - ROLL 60 FT/SEC NOMINAL



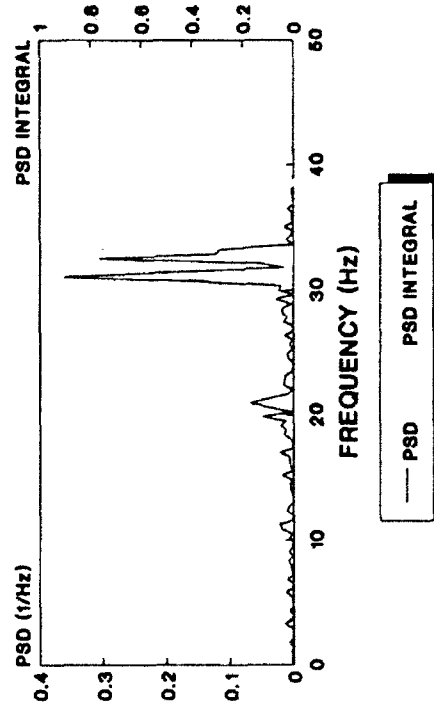
CUBE - HT 8.31 - THETA 46 - AZ 120

# MOMENT COEFF - ROLL 90 FT/SEC NOMINAL



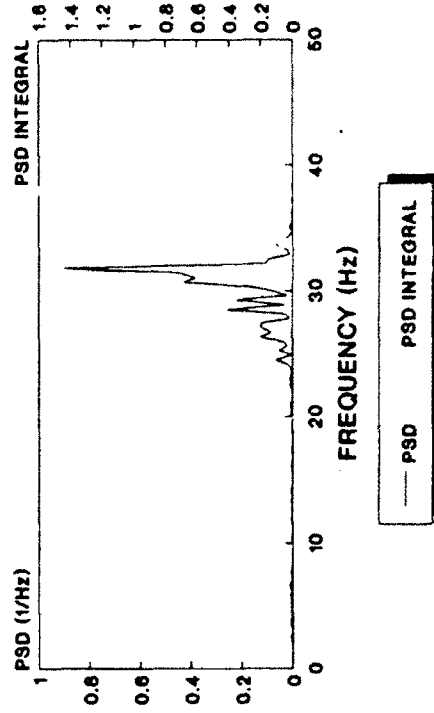
CUBE - HT 8.31 - THETA 46 - AZ 120

# MOMENT COEFF - ROLL 120 FT/SEC NOMINAL



CUBE - HT 8.31 - THETA 46 - AZ 120

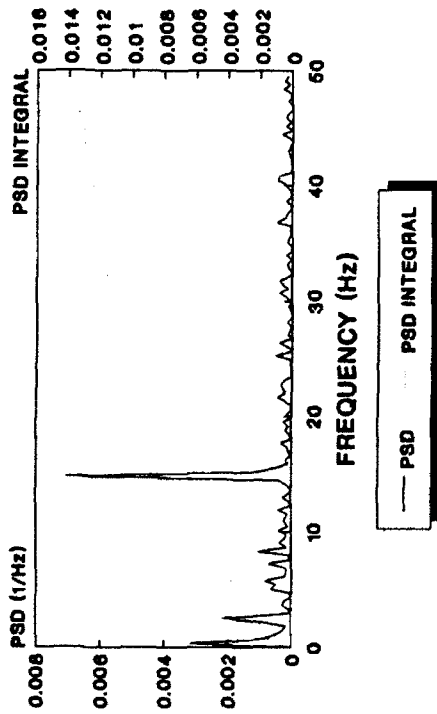
# MOMENT COEFF - ROLL 180 FT/SEC NOMINAL



CUBE - HT 8.31 - THETA 46 - AZ 120

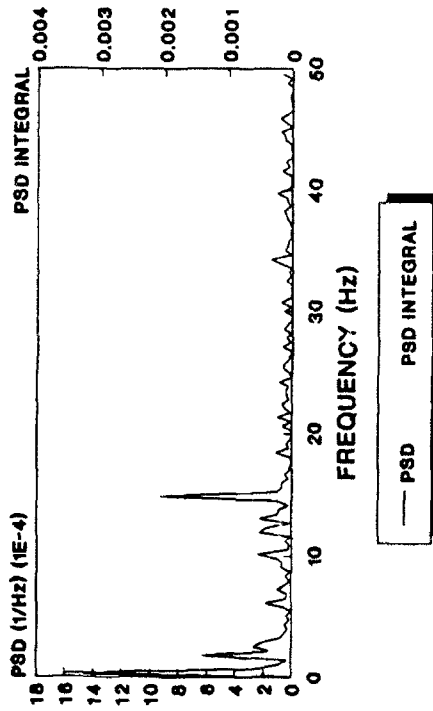


# FORCE COEFF - NORMAL 60 FT/SEC NOMINAL



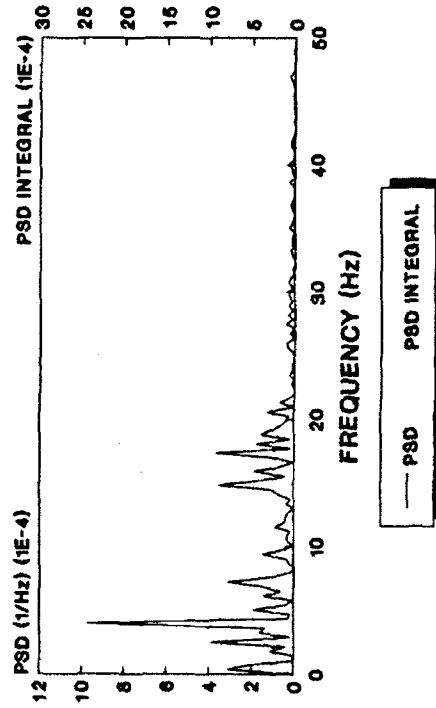
CUBE - HT 8.31 - THETA 46 - AZ 136

# FORCE COEFF - NORMAL 90 FT/SEC NOMINAL



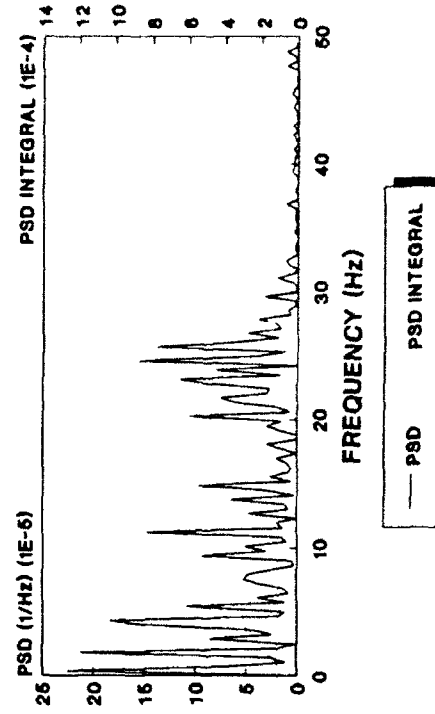
CUBE - HT 8.31 - THETA 46 - AZ 136

# FORCE COEFF - NORMAL 120 FT/SEC NOMINAL



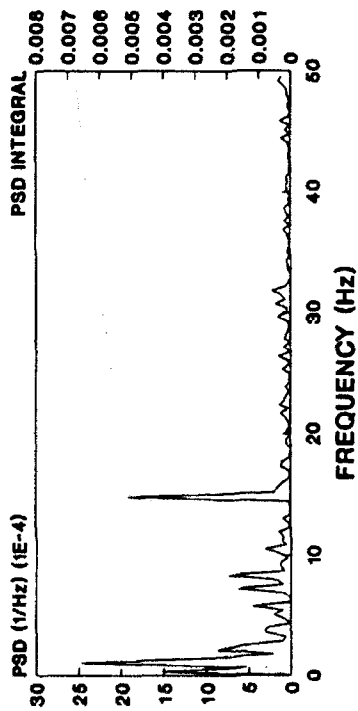
CUBE - HT 8.31 - THETA 46 - AZ 136

# FORCE COEFF - NORMAL 180 FT/SEC NOMINAL



CUBE - HT 8.31 - THETA 46 - AZ 136

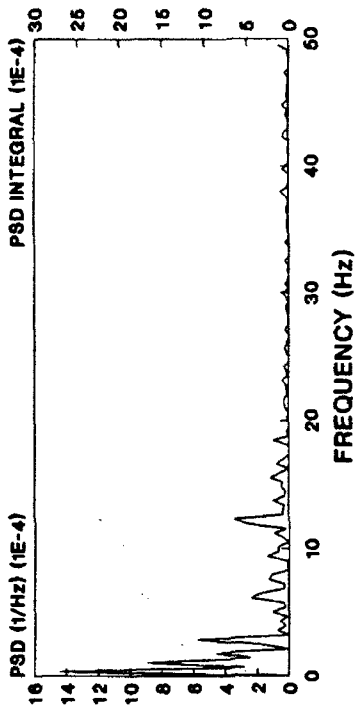
# MOMENT COEFF - NORMAL 60 FT/SEC NOMINAL



— PSD    - - - PSD INTEGRAL

CUBE - HT 8.31 - THETA 48 - AZ 136

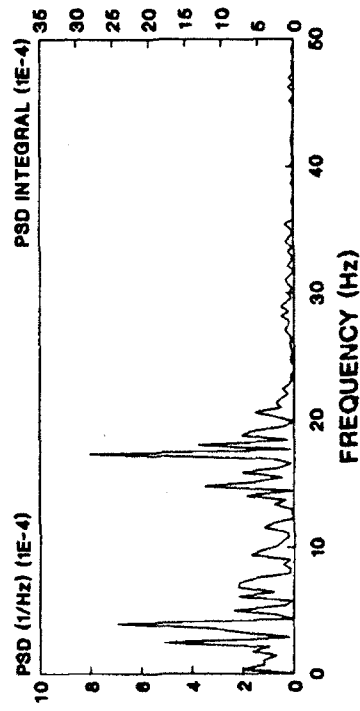
# MOMENT COEFF - NORMAL 90 FT/SEC NOMINAL



— PSD    - - - PSD INTEGRAL

CUBE - HT 8.31 - THETA 46 - AZ 136

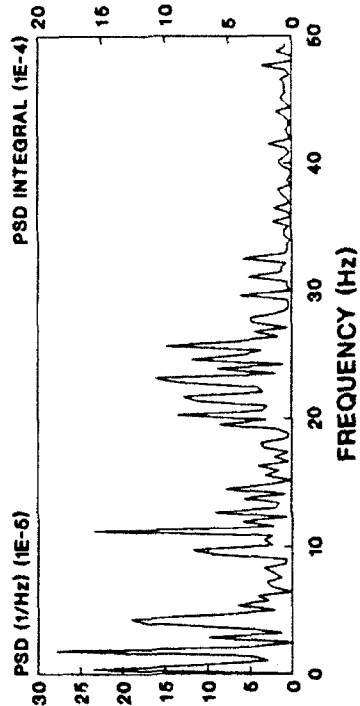
# MOMENT COEFF - NORMAL 120 FT/SEC NOMINAL



— PSD    - - - PSD INTEGRAL

CUBE - HT 8.31 - THETA 48 - AZ 136

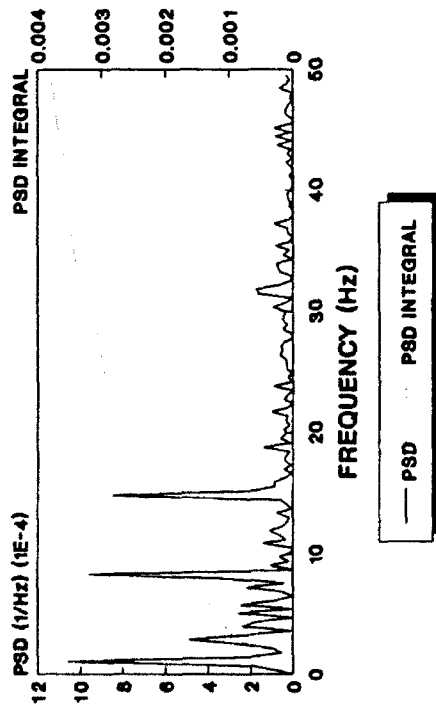
# MOMENT COEFF - NORMAL 180 FT/SEC NOMINAL



— PSD    - - - PSD INTEGRAL

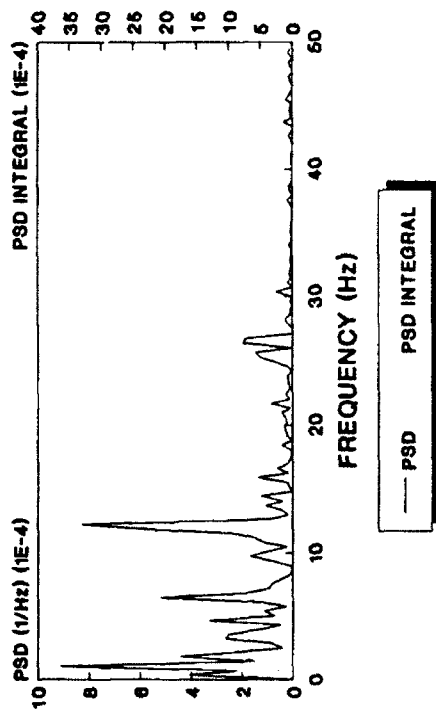
CUBE - HT 8.31 - THETA 46 - AZ 136

# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



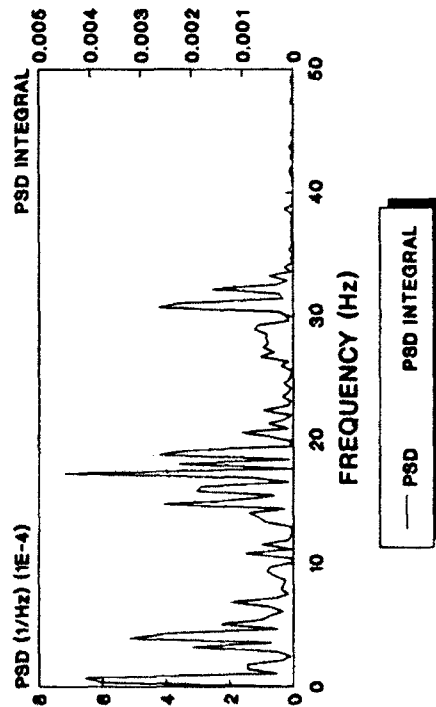
CUBE - HT 8.31 - THETA 46 - AZ 136

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



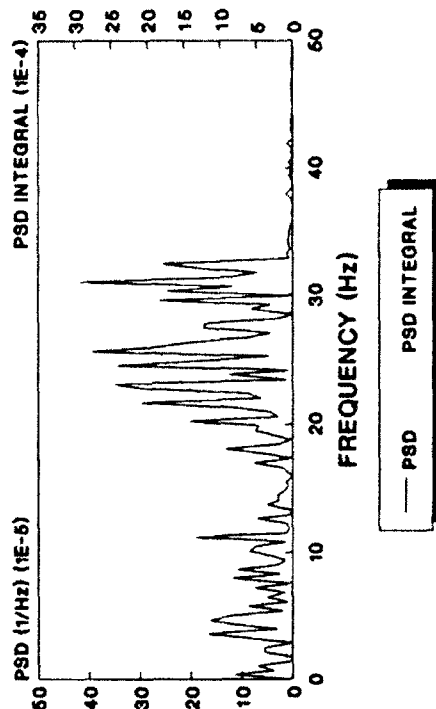
CUBE - HT 8.31 - THETA 46 - AZ 136

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



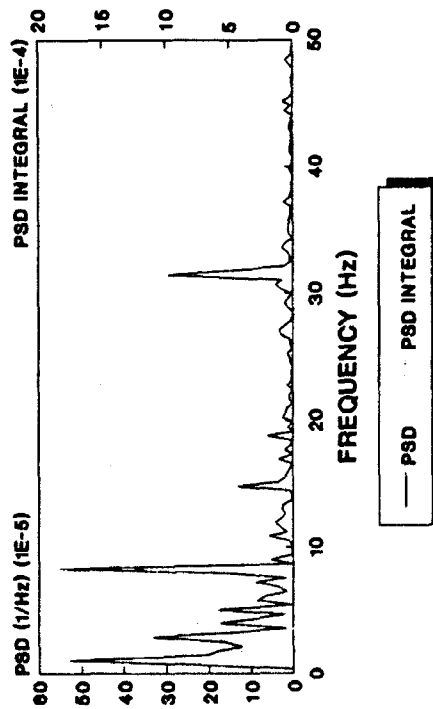
CUBE - HT 8.31 - THETA 46 - AZ 136

# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



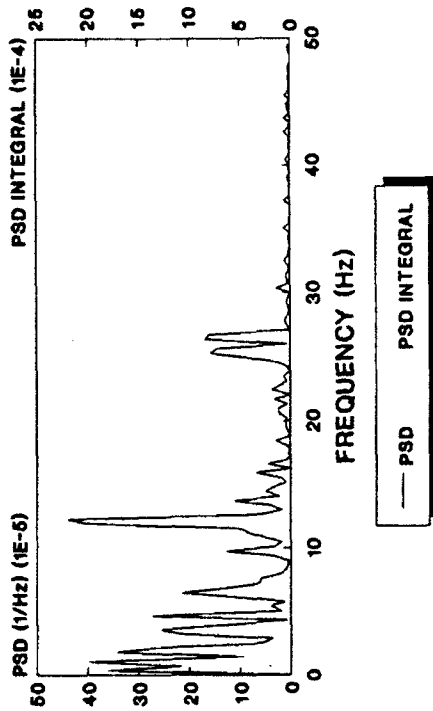
CUBE - HT 8.31 - THETA 46 - AZ 136

# MOMENT COEFF - LATERAL 60 FT/SEC NOMINAL



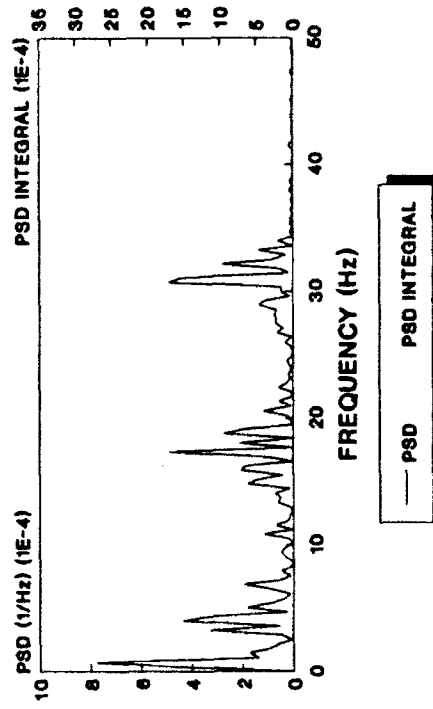
CUBE - HT 8.31 - THETA 45 - AZ 136

# MOMENT COEFF - LATERAL 90 FT/SEC NOMINAL



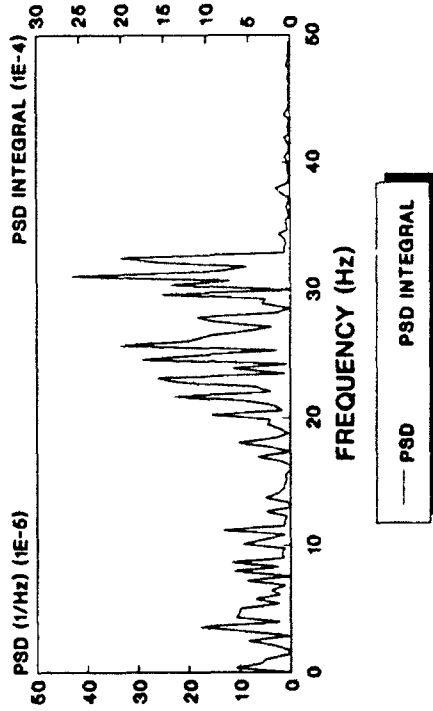
CUBE - HT 8.31 - THETA 45 - AZ 136

# MOMENT COEFF - LATERAL 120 FT/SEC NOMINAL



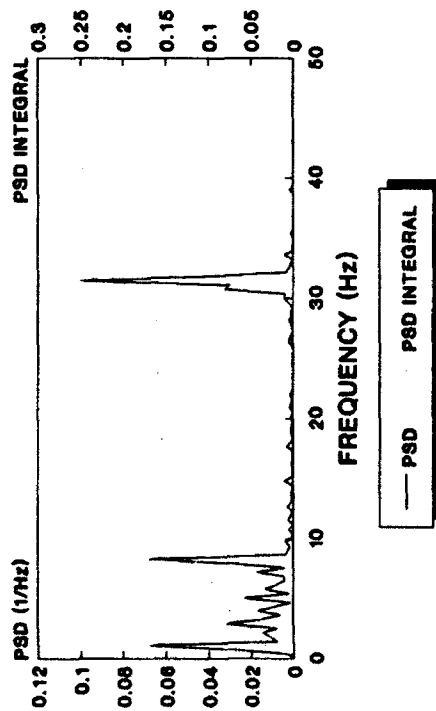
CUBE - HT 8.31 - THETA 45 - AZ 136

# MOMENT COEFF - LATERAL 180 FT/SEC NOMINAL



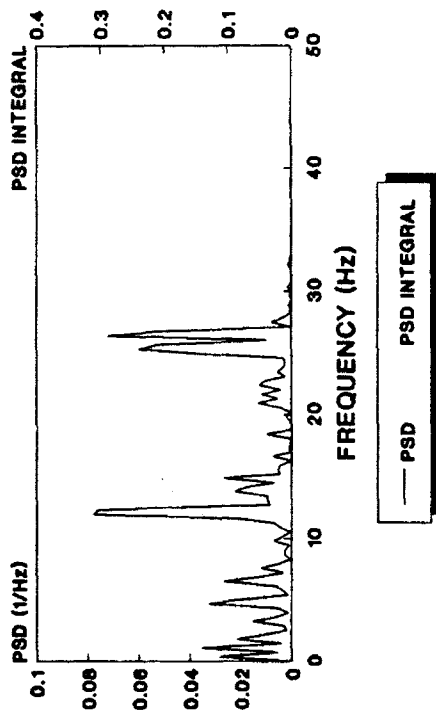
CUBE - HT 8.31 - THETA 45 - AZ 136

# MOMENT COEFF - ROLL 60 FT/SEC NOMINAL



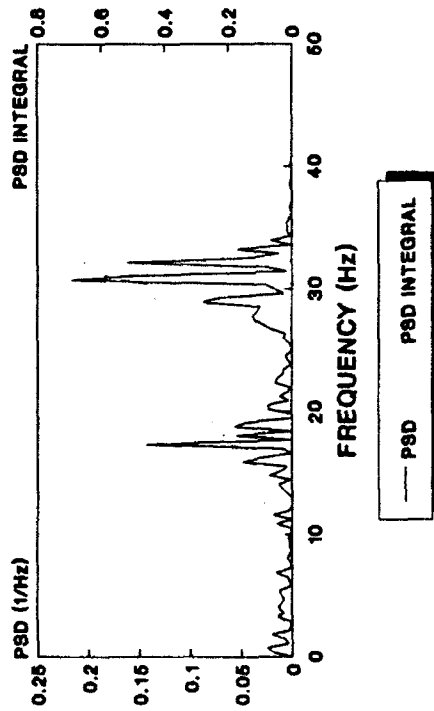
CUBE - HT 0.31 - THETA 45 - AZ 135

# MOMENT COEFF - ROLL 90 FT/SEC NOMINAL



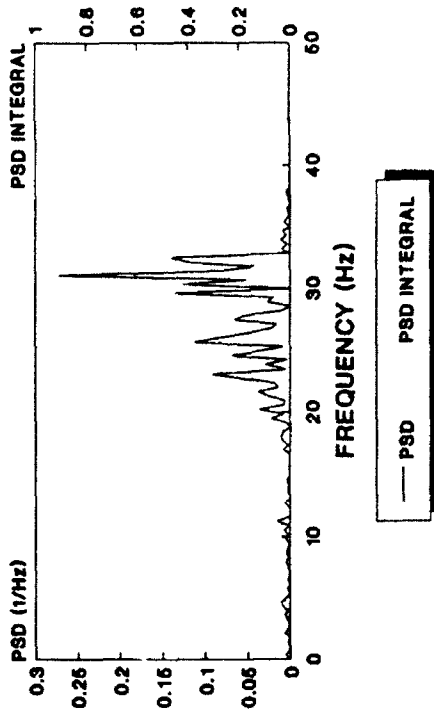
CUBE - HT 0.31 - THETA 45 - AZ 135

# MOMENT COEFF - ROLL 120 FT/SEC NOMINAL



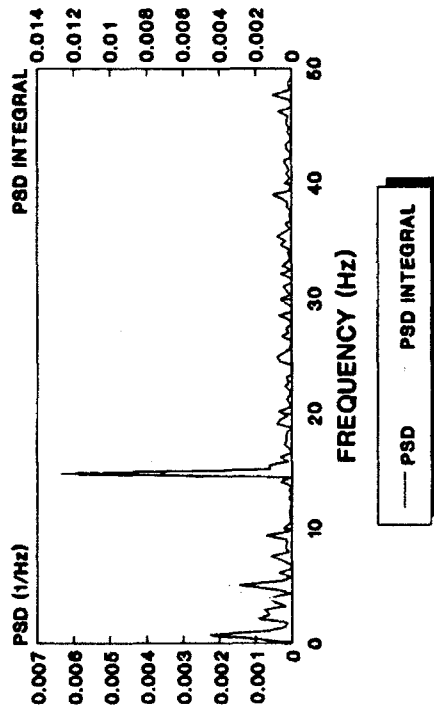
CUBE - HT 0.31 - THETA 45 - AZ 135

# MOMENT COEFF - ROLL 180 FT/SEC NOMINAL



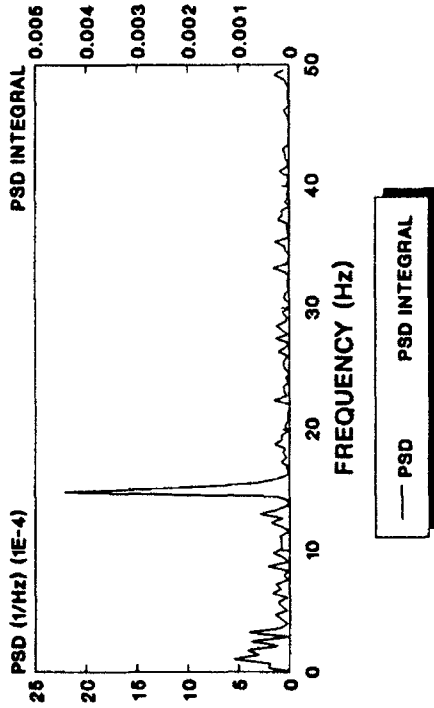
CUBE - HT 0.31 - THETA 45 - AZ 135

# FORCE COEFF - NORMAL 60 FT/SEC NOMINAL



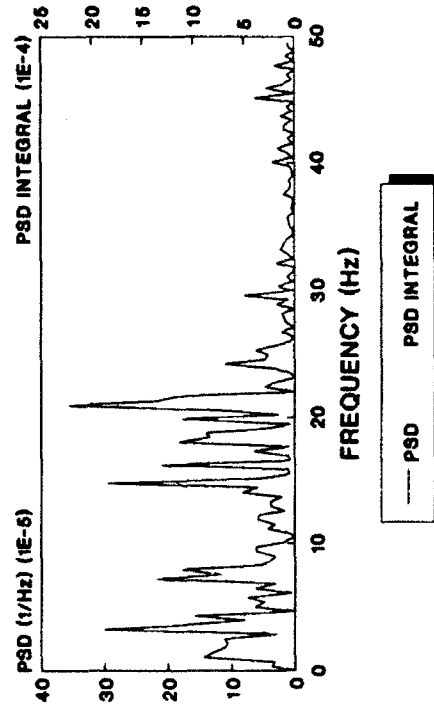
CUBE - HT 8.31 - THETA 45 - AZ 150

# FORCE COEFF - NORMAL 90 FT/SEC NOMINAL



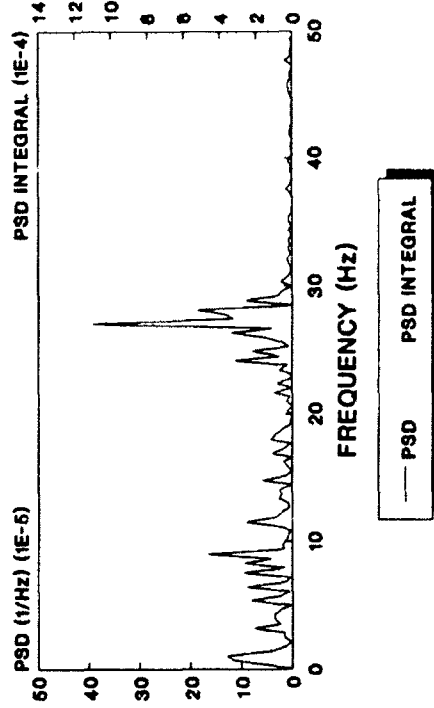
CUBE - HT 8.31 - THETA 45 - AZ 150

# FORCE COEFF - NORMAL 120 FT/SEC NOMINAL



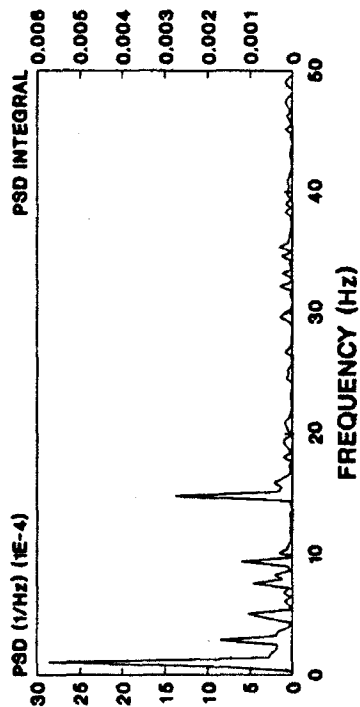
CUBE - HT 8.31 - THETA 45 - AZ 150

# FORCE COEFF - NORMAL 180 FT/SEC NOMINAL



CUBE - HT 8.31 - THETA 45 - AZ 150

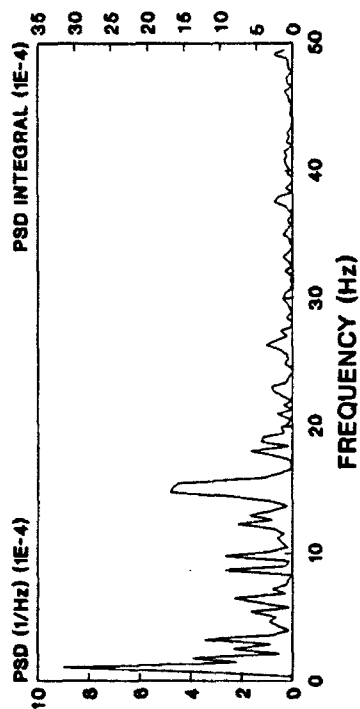
# MOMENT COEFF - NORMAL 60 FT/SEC NOMINAL



— PSD      - - - PSD INTEGRAL

CUBE - HT 8.31 - THETA 45 - AZ 160

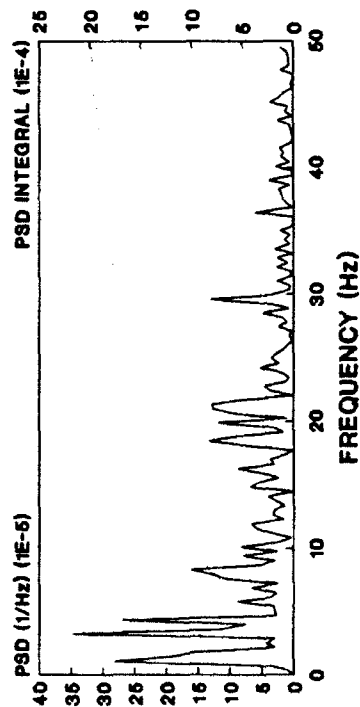
# MOMENT COEFF - NORMAL 90 FT/SEC NOMINAL



— PSD      - - - PSD INTEGRAL

CUBE - HT 8.31 - THETA 45 - AZ 160

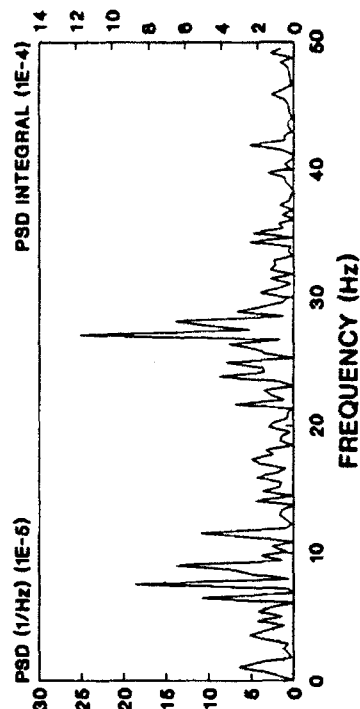
# MOMENT COEFF - NORMAL 120 FT/SEC NOMINAL



— PSD      - - - PSD INTEGRAL

CUBE - HT 8.31 - THETA 45 - AZ 160

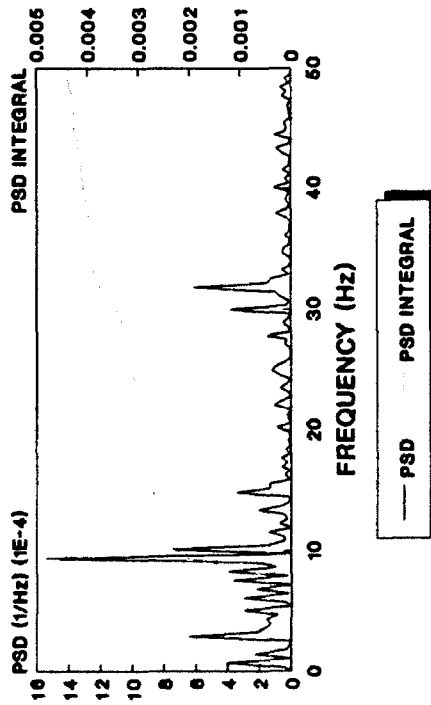
# MOMENT COEFF - NORMAL 180 FT/SEC NOMINAL



— PSD      - - - PSD INTEGRAL

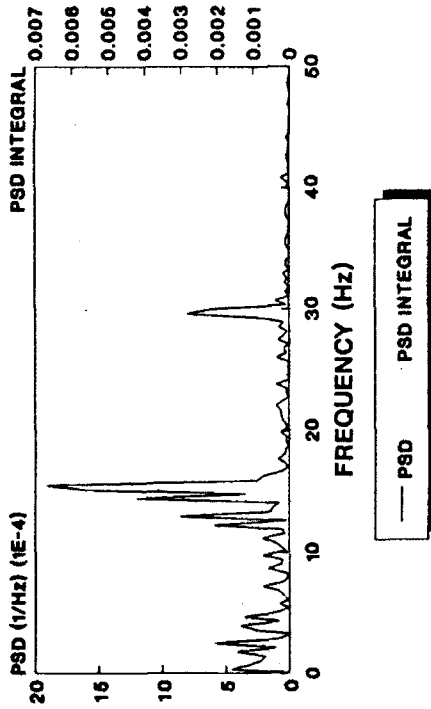
CUBE - HT 8.31 - THETA 45 - AZ 160

# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



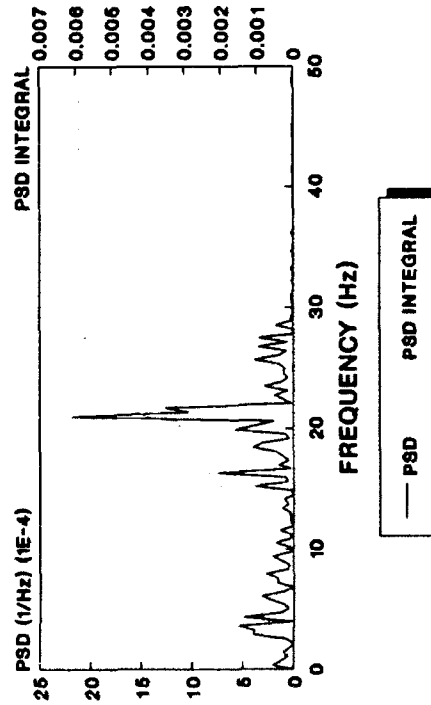
CUBE - HT 8.31 - THETA 46 - AZ 160

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



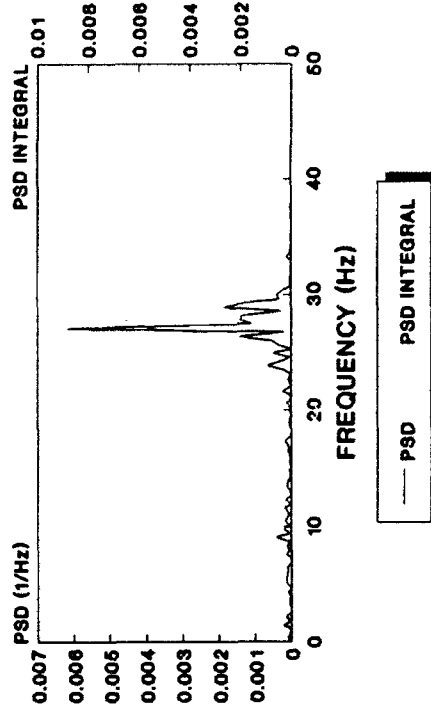
CUBE - HT 8.31 - THETA 46 - AZ 160

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



CUBE - HT 8.31 - THETA 46 - AZ 160

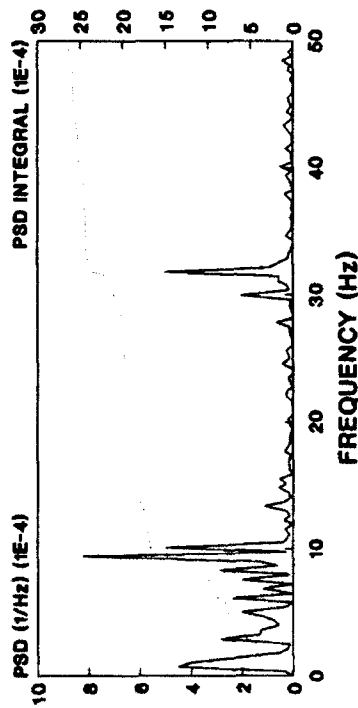
# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



CUBE - HT 8.31 - THETA 46 - AZ 160

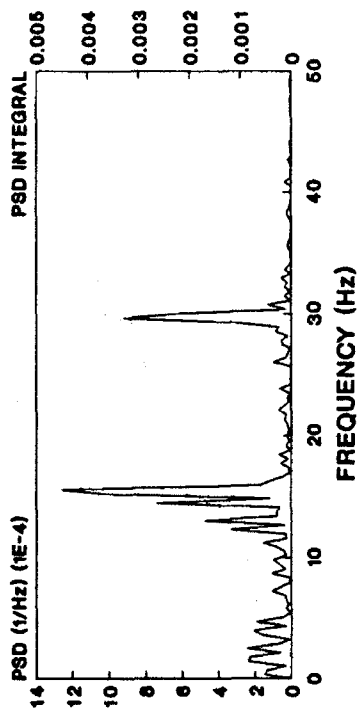


# MOMENT COEFF - LATERAL 60 FT/SEC NOMINAL



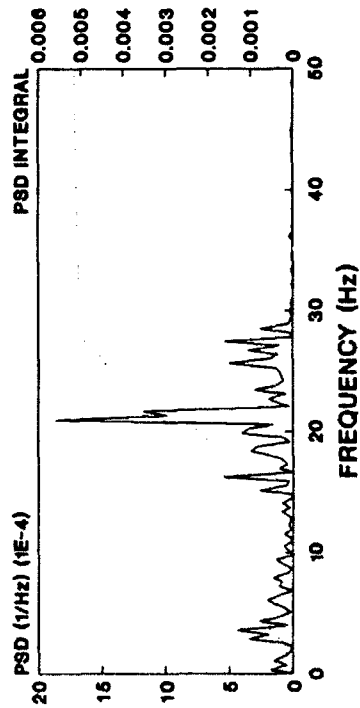
CUBE - HT 8.31 - THETA 45 - AZ 160

# MOMENT COEFF - LATERAL 90 FT/SEC NOMINAL



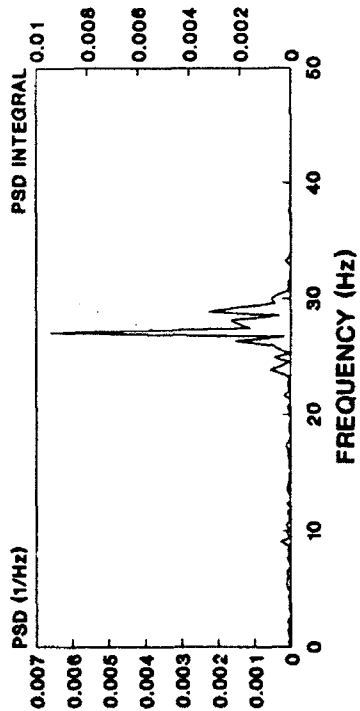
CUBE - HT 8.31 - THETA 45 - AZ 160

# MOMENT COEFF - LATERAL 120 FT/SEC NOMINAL



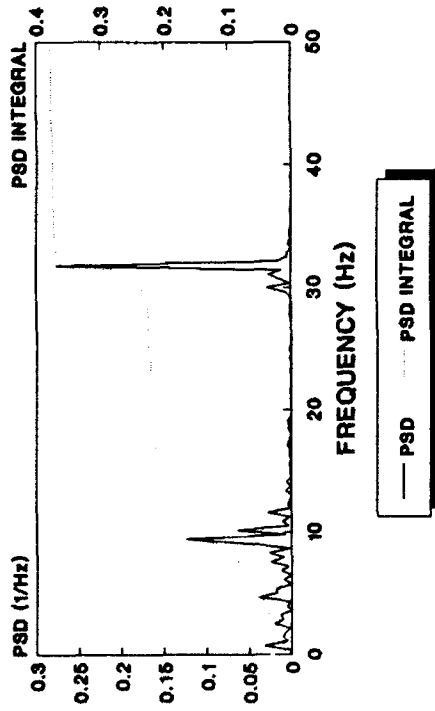
CUBE - HT 8.31 - THETA 45 - AZ 160

# MOMENT COEFF - LATERAL 180 FT/SEC NOMINAL



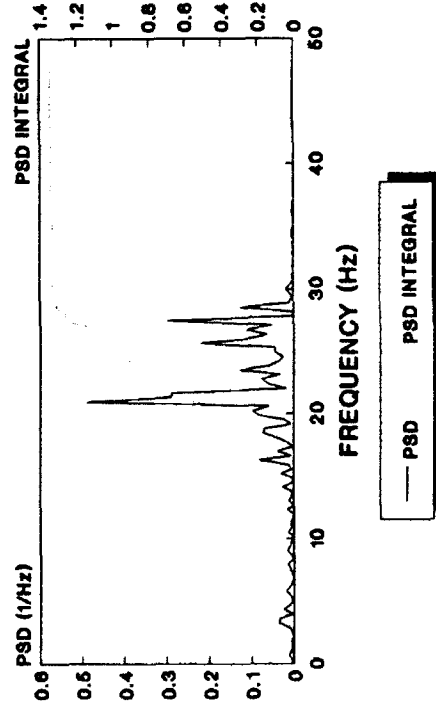
CUBE - HT 8.31 - THETA 45 - AZ 160

# MOMENT COEFF - ROLL 60 FT/SEC NOMINAL



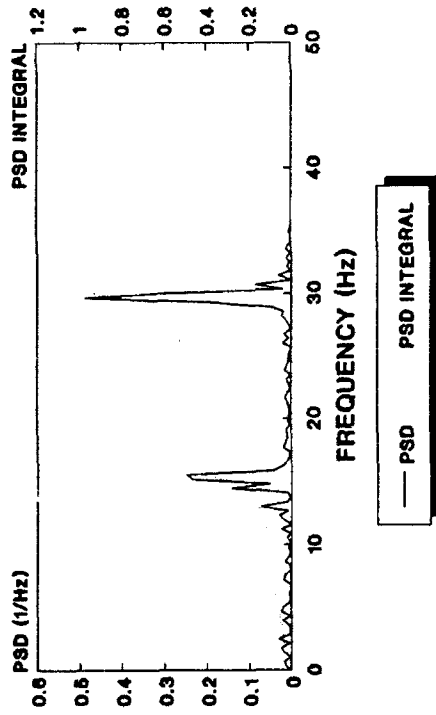
CUBE - HT 8.31 - THETA 45 - AZ 160

# MOMENT COEFF - ROLL 120 FT/SEC NOMINAL



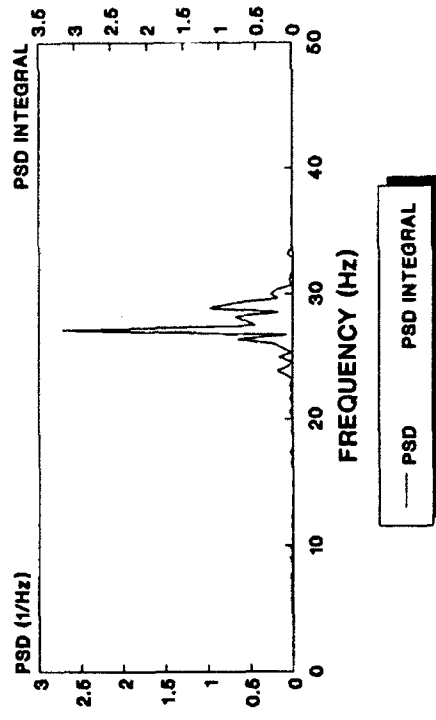
CUBE - HT 8.31 - THETA 45 - AZ 160

# MOMENT COEFF - ROLL 90 FT/SEC NOMINAL



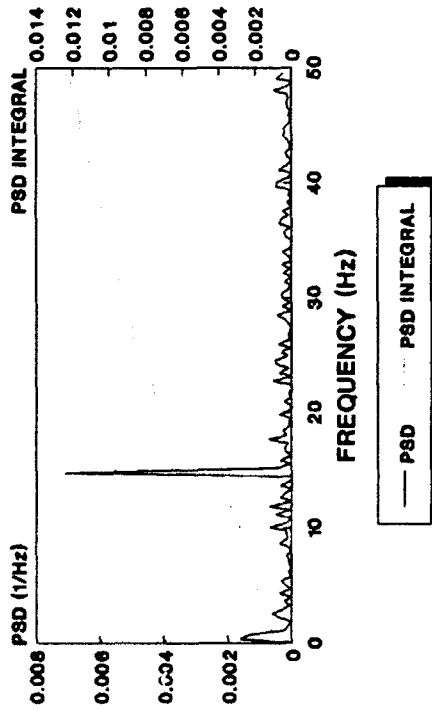
CUBE - HT 8.31 - THETA 45 - AZ 160

# MOMENT COEFF - ROLL 180 FT/SEC NOMINAL



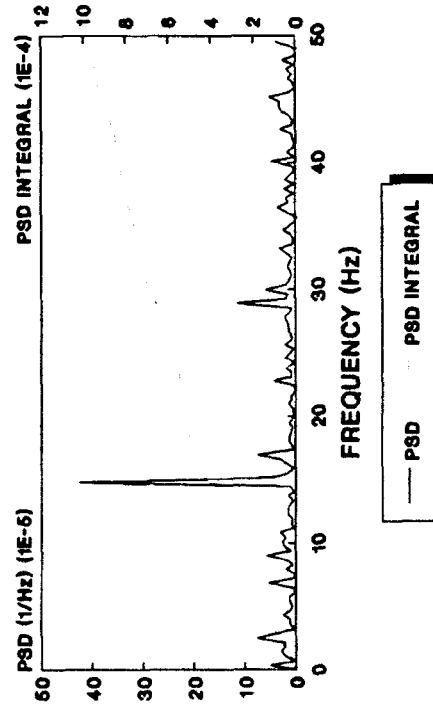
CUBE - HT 8.31 - THETA 45 - AZ 160

# FORCE COEFF - NORMAL 60 FT/SEC NOMINAL



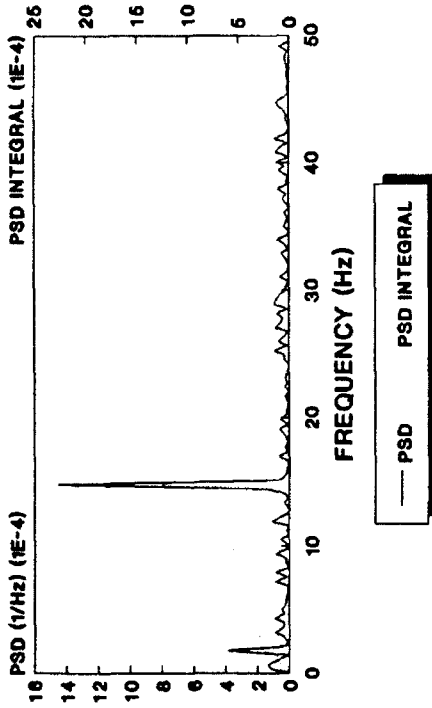
CUBE - HT 8.31 - THETA 45 - AZ 180

# FORCE COEFF - NORMAL 120 FT/SEC NOMINAL



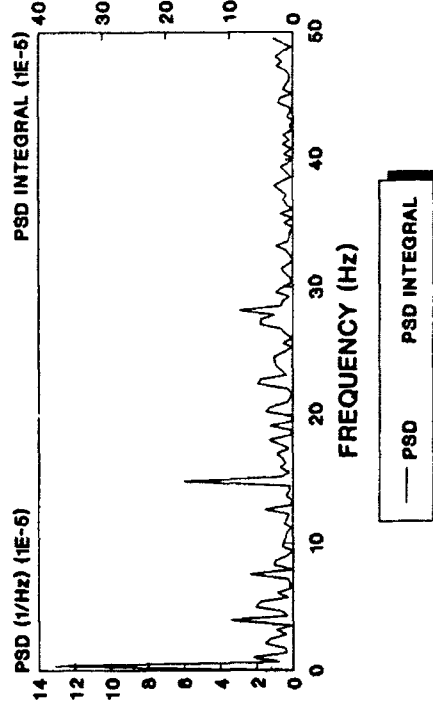
CUBE - HT 8.31 - THETA 45 - AZ 180

# FORCE COEFF - NORMAL 90 FT/SEC NOMINAL



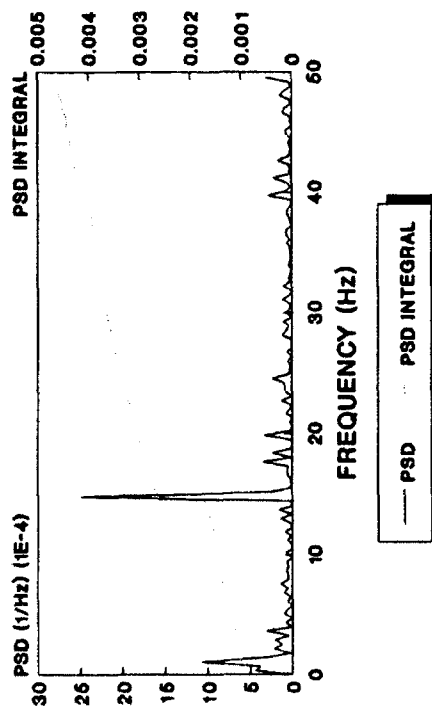
CUBE - HT 8.31 - THETA 45 - AZ 180

# FORCE COEFF - NORMAL 180 FT/SEC NOMINAL



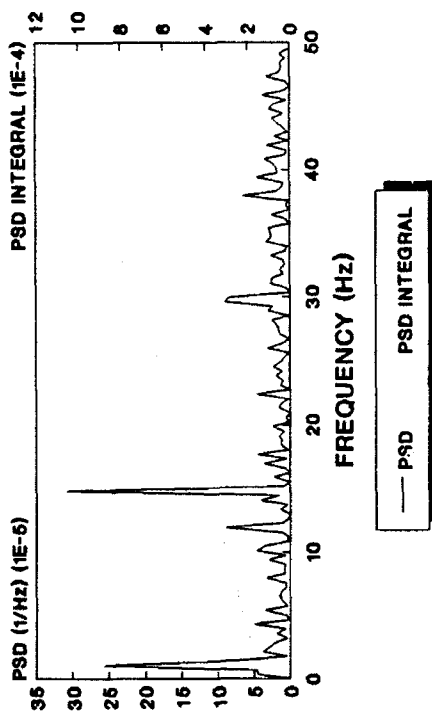
CUBE - HT 8.31 - THETA 45 - AZ 180

# MOMENT COEFF - NORMAL 60 FT/SEC NOMINAL



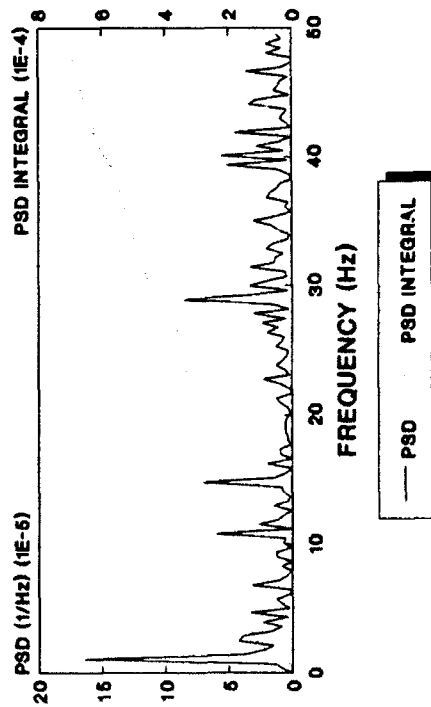
CUBE - HT 8.31 - THETA 45 - AZ 180

# MOMENT COEFF - NORMAL 90 FT/SEC NOMINAL



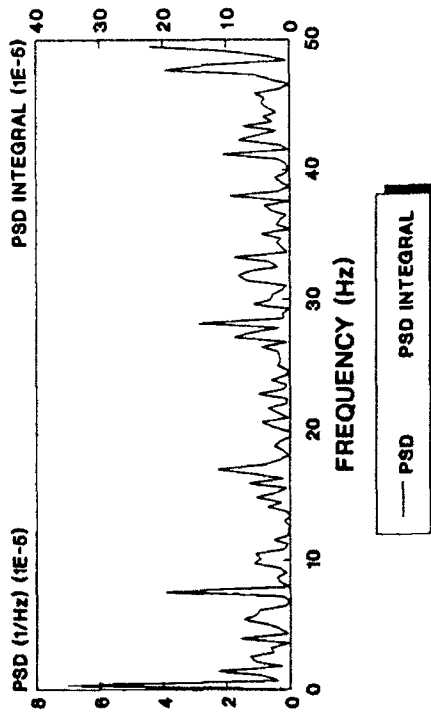
CUBE - HT 8.31 - THETA 45 - AZ 180

# MOMENT COEFF - NORMAL 120 FT/SEC NOMINAL



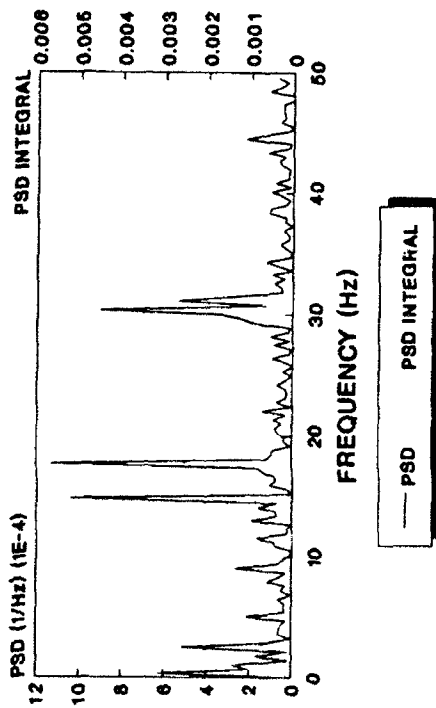
CUBE - HT 8.31 - THETA 45 - AZ 180

# MOMENT COEFF - NORMAL 180 FT/SEC NOMINAL



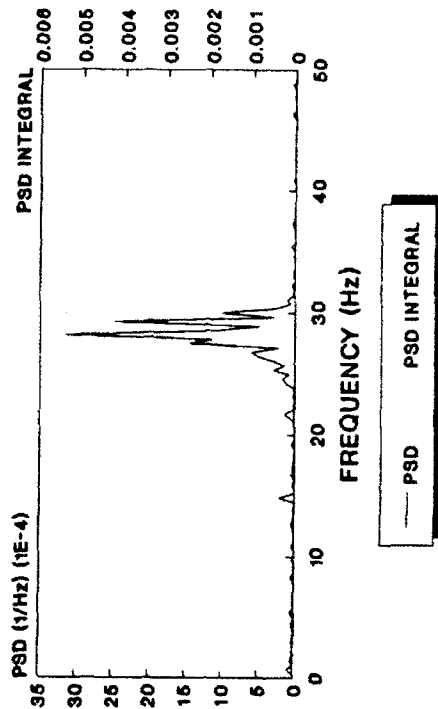
CUBE - HT 8.31 - THETA 45 - AZ 180

# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



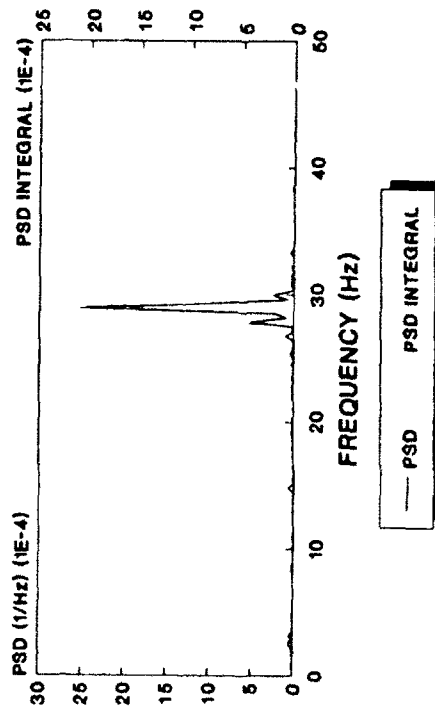
CUBE - HT 8.31 - THETA 45 - AZ 180

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



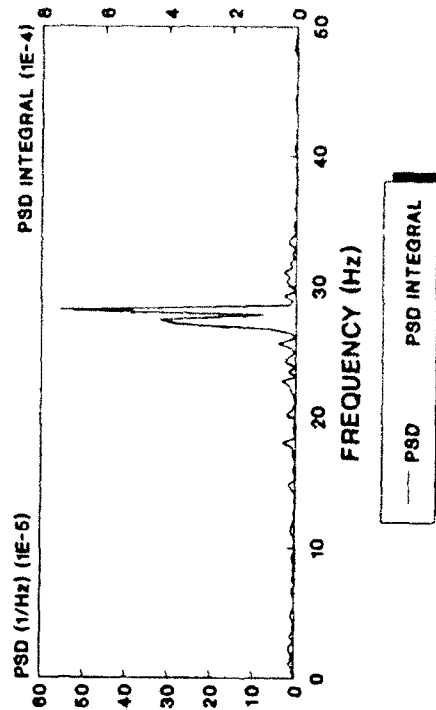
CUBE - HT 8.31 - THETA 45 - AZ 180

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



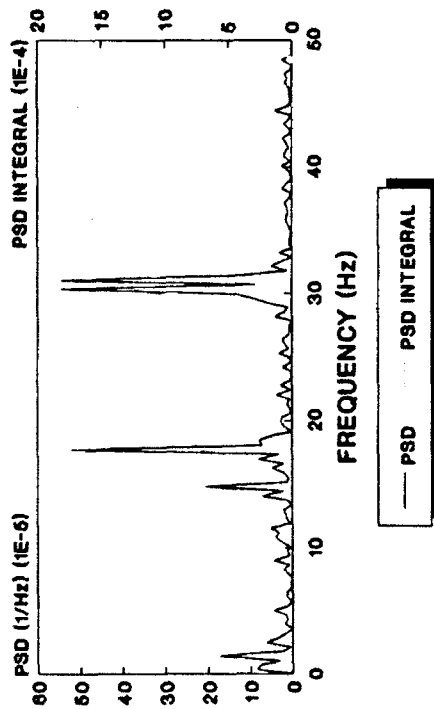
CUBE - HT 8.31 - THETA 45 - AZ 180

# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



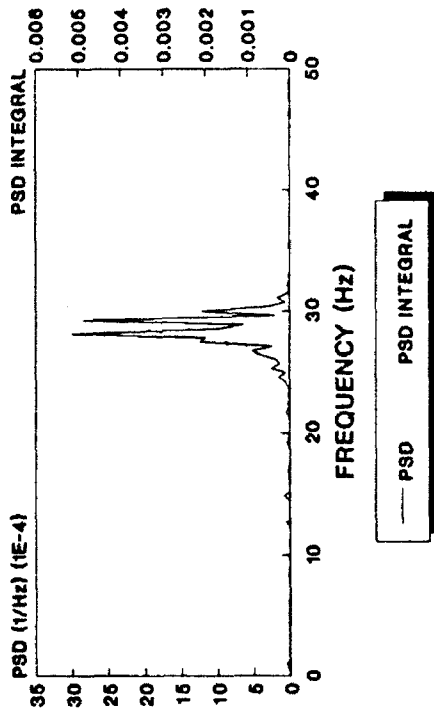
CUBE - HT 8.31 - THETA 45 - AZ 180

# MOMENT COEFF - LATERAL 60 FT/SEC NOMINAL



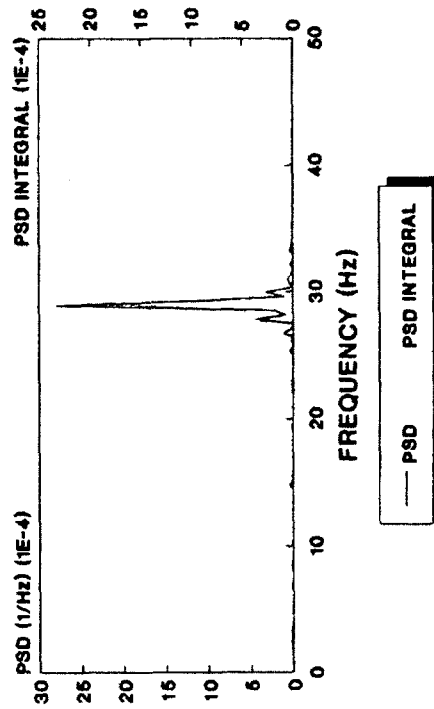
CUBE - HT 8.31 - THETA 45 - AZ 180

# MOMENT COEFF - LATERAL 90 FT/SEC NOMINAL



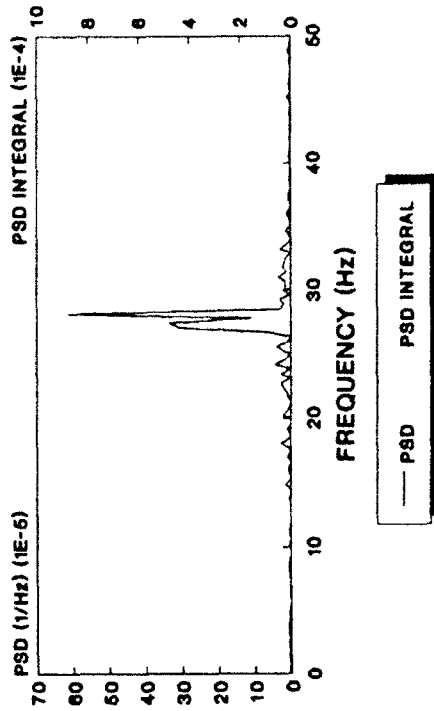
CUBE - HT 8.31 - THETA 45 - AZ 180

# MOMENT COEFF - LATERAL 120 FT/SEC NOMINAL



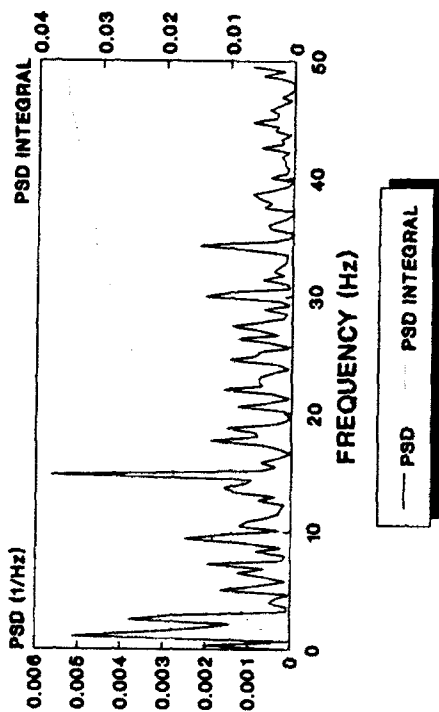
CUBE - HT 8.31 - THETA 45 - AZ 180

# MOMENT COEFF - LATERAL 180 FT/SEC NOMINAL



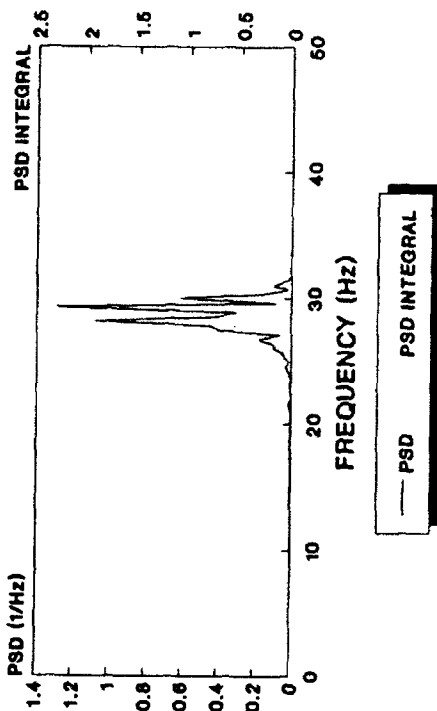
CUBE - HT 8.31 - THETA 45 - AZ 180

# MOMENT COEFF - ROLL 60 FT/SEC NOMINAL



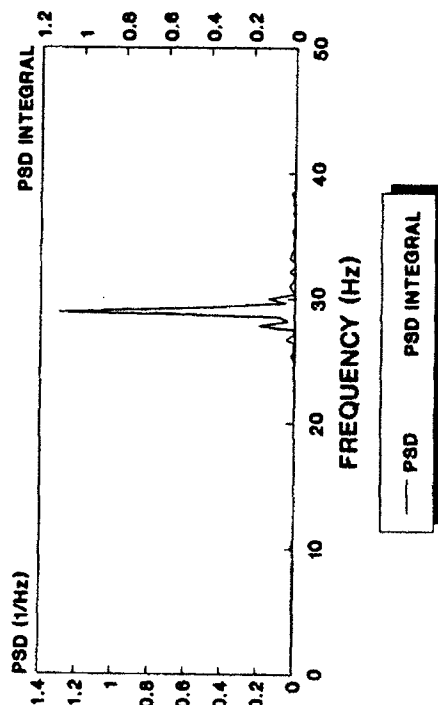
CUBE - HT 8.31 - THETA 46 - AZ 180

# MOMENT COEFF - ROLL 90 FT/SEC NOMINAL



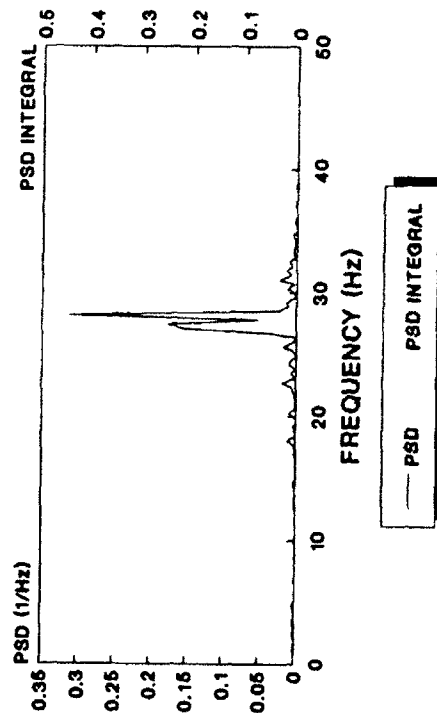
CUBE - HT 8.31 - THETA 46 - AZ 180

# MOMENT COEFF - ROLL 120 FT/SEC NOMINAL



CUBE - HT 8.31 - THETA 46 - AZ 180

# MOMENT COEFF - ROLL 180 FT/SEC NOMINAL



CUBE - HT 8.31 - THETA 46 - AZ 180

## DATA REPORT

SHAPE:	CUBE (ROUNDED)
DECLINATION [THETA (degrees)]:	0
DIMENSIONS [LxWxH (in)]:	8.0 x 8.0 x 10.0
WEIGHT (gm):	1700.0
TORSION FREQUENCY (Hz):	34
LATERAL (SIDE BEND) FREQUENCY (Hz):	46
NORMAL (AFT BEND) FREQUENCY (Hz):	46
AZIMUTHS (degrees):	0, 30, 45, 60, 90

### GRAPH CORRECTIONS:

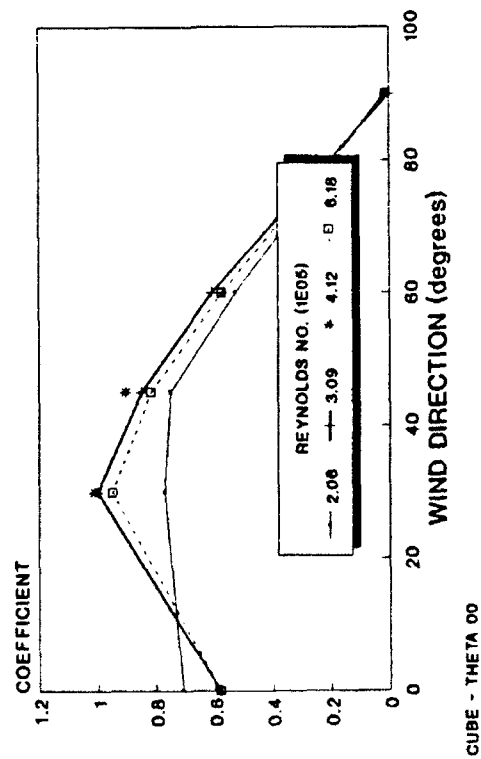
- The mean value of the **ROLL** moment coefficients should be divided by 12.
- The PSD and PSD Integral values of the **ROLL** moment coefficients should be divided by 144.

### OBSERVATIONS:

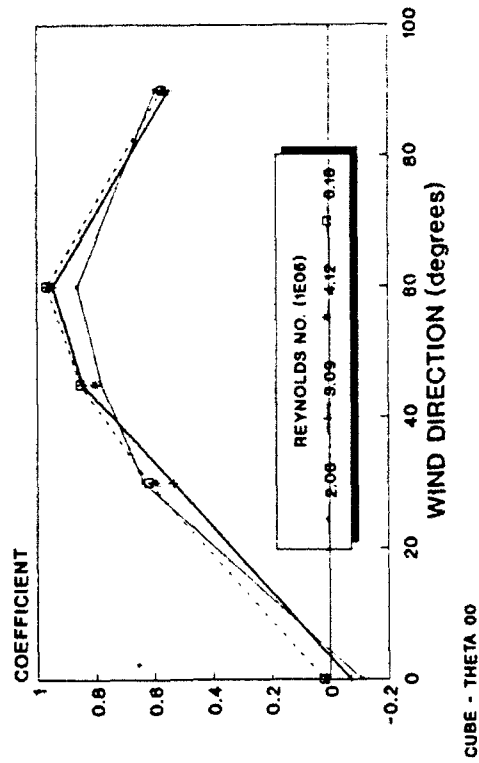
- Shedding not observed.
- 15.176 Hz spike seen in data.



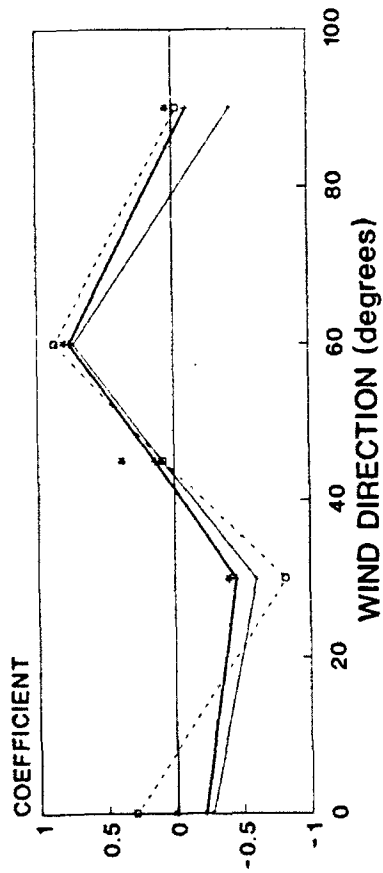
# MEAN FORCE COEFFICIENT NORMAL DIRECTION



# MEAN FORCE COEFFICIENT LATERAL DIRECTION

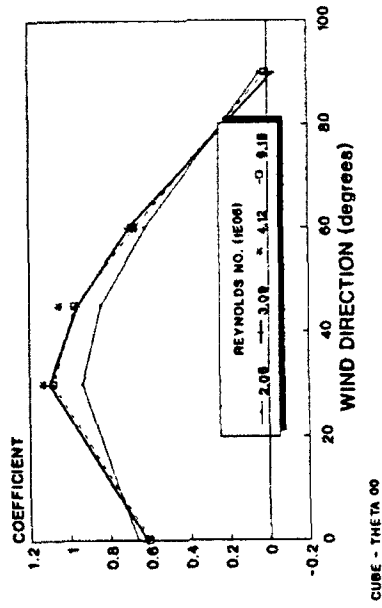


# MEAN MOMENT COEFFICIENT ROLL DIRECTION



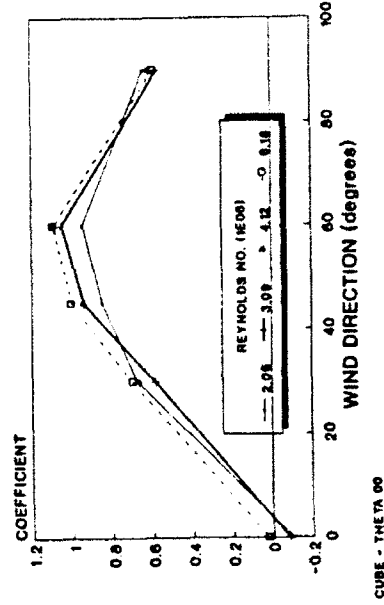
CUBE - THETA 00

# MEAN MOMENT COEFFICIENT NORMAL DIRECTION



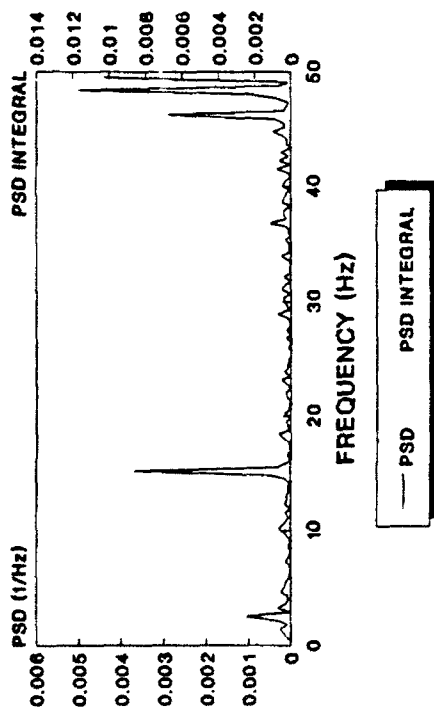
CUBE - THETA 00

# MEAN MOMENT COEFFICIENT LATERAL DIRECTION



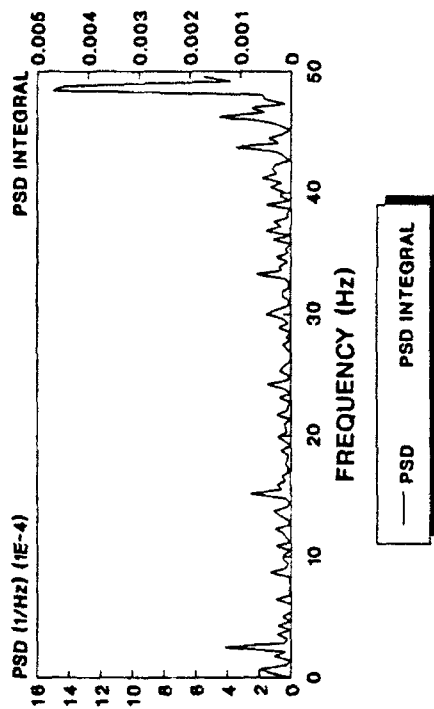
CUBE - THETA 00

# FORCE COEFF - NORMAL 60 FT/SEC NOMINAL



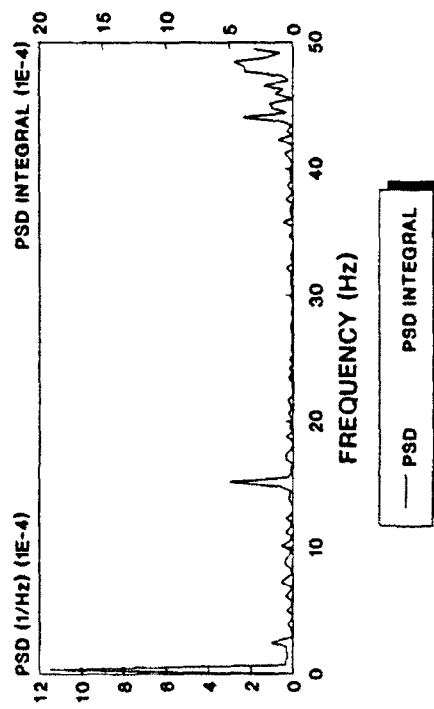
CUBE2 - THETA 00 - AZIMUTH - 000

# FORCE COEFF - NORMAL 90 FT/SEC NOMINAL



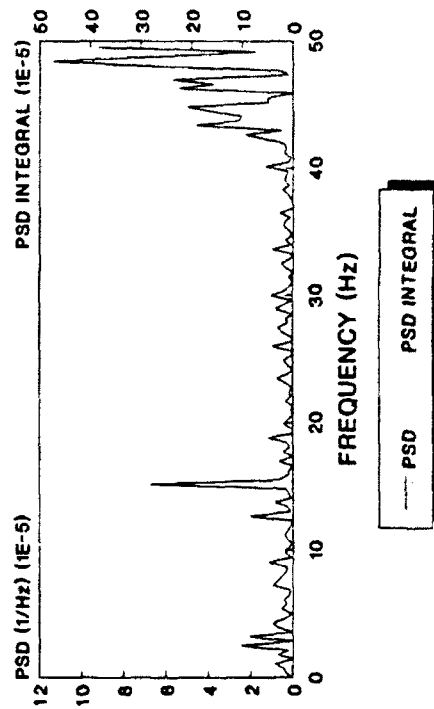
CUBE2 - THETA 00 - AZIMUTH - 000

# FORCE COEFF - NORMAL 120 FT/SEC NOMINAL



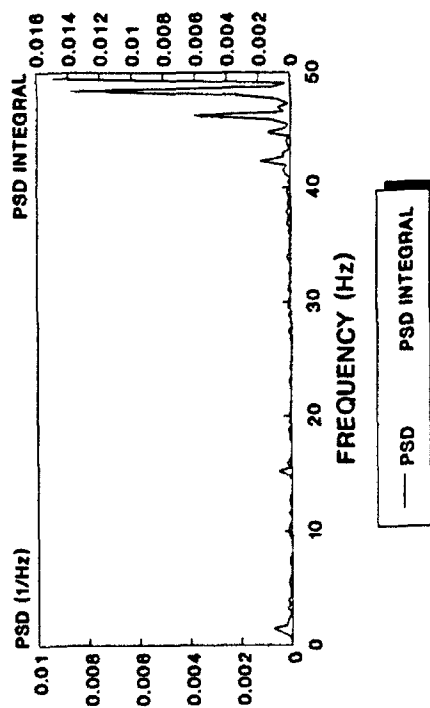
CUBE2 - THETA 00 - AZIMUTH - 000

# FORCE COEFF - NORMAL 180 FT/SEC NOMINAL



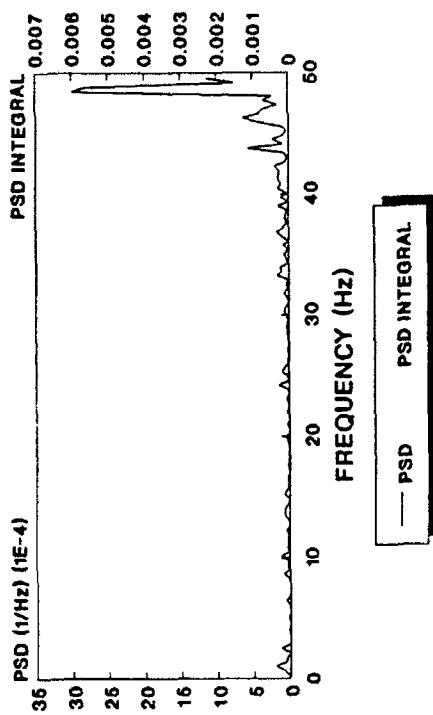
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# MOMENT COEFF - NORMAL 60 FT/SEC NOMINAL



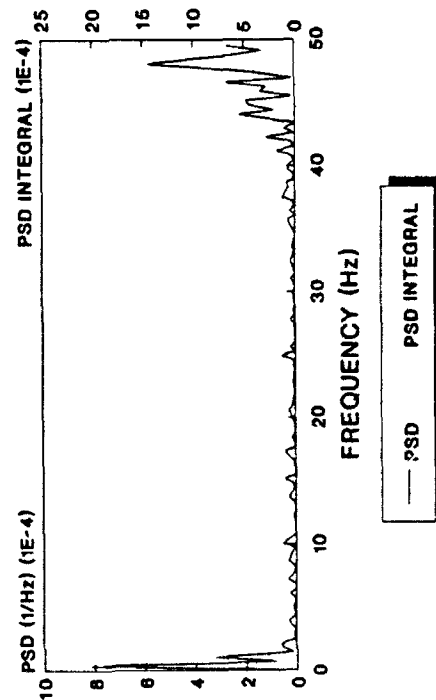
CUBE - THETA 00 - AZIMUTH - 000

# MOMENT COEFF - NORMAL 90 FT/SEC NOMINAL



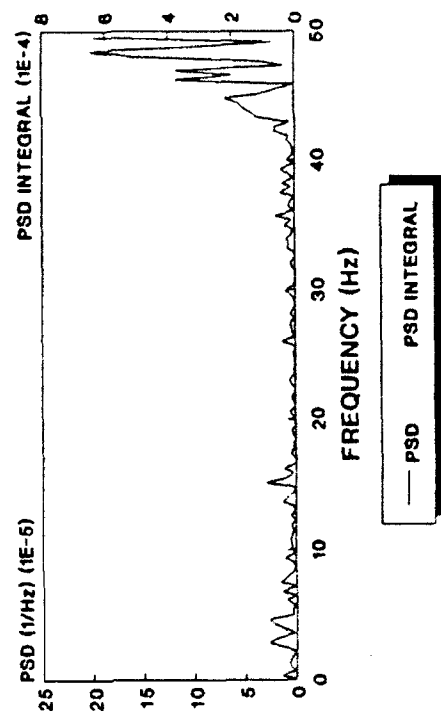
CUBE - THETA 00 - AZIMUTH - 000

# MOMENT COEFF - NORMAL 120 FT/SEC NOMINAL



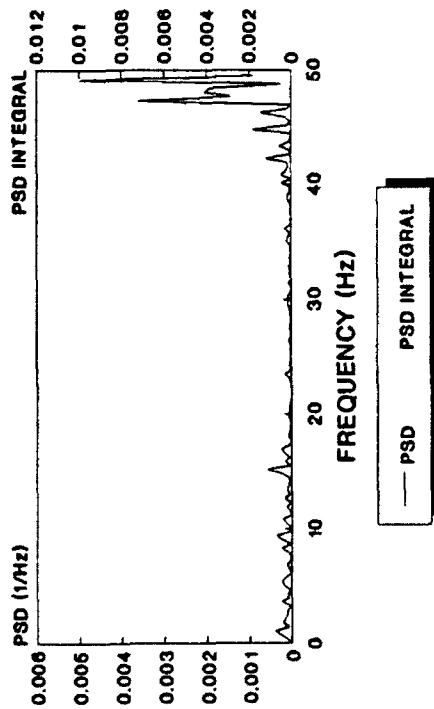
CUBE - THETA 00 - AZIMUTH - 000

# MOMENT COEFF - NORMAL 180 FT/SEC NOMINAL



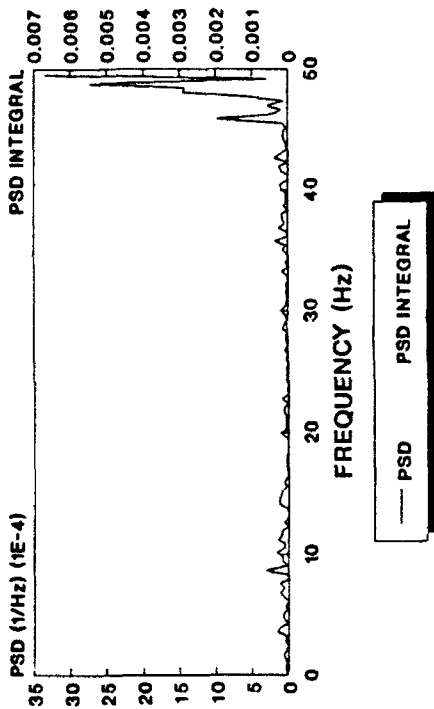
CUBE - THETA 00 - AZIMUTH - 000

# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



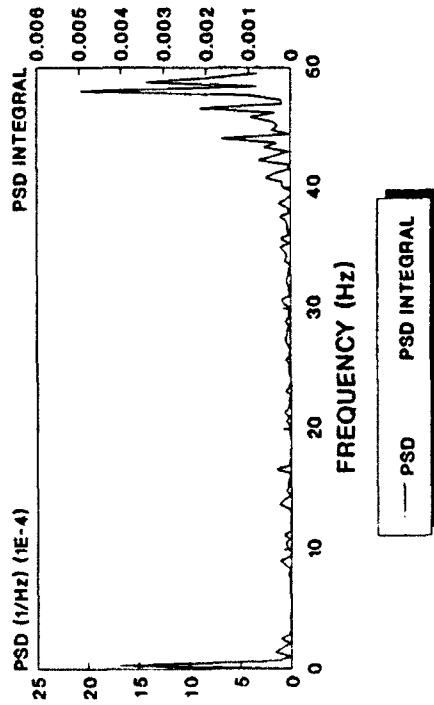
CUBE - THETA 00 - AZIMUTH - 000

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



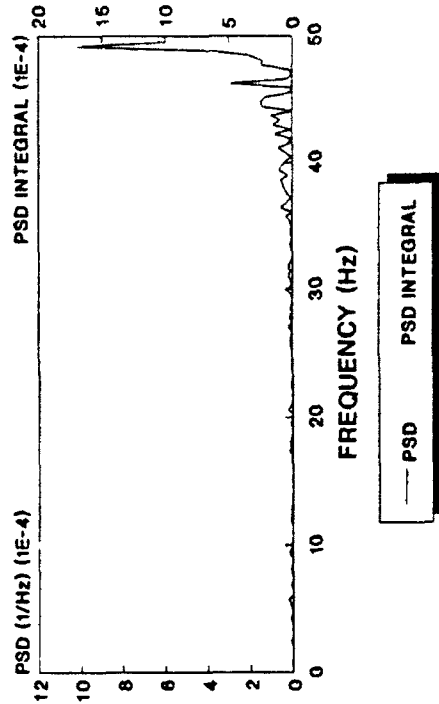
CUBE - THETA 00 - AZIMUTH - 000

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



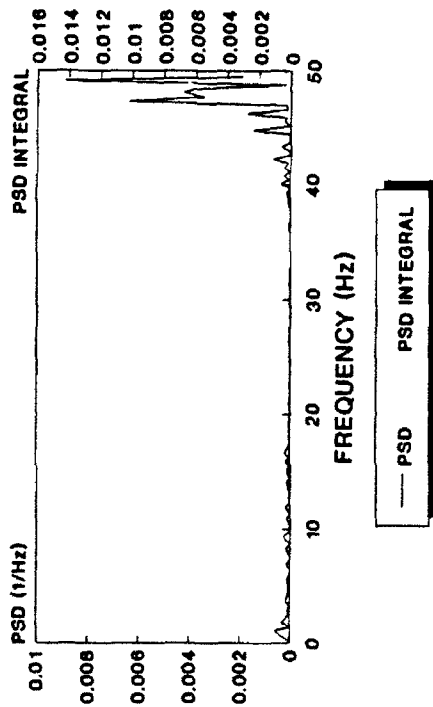
CUBE - THETA 00 - AZIMUTH - 000

# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



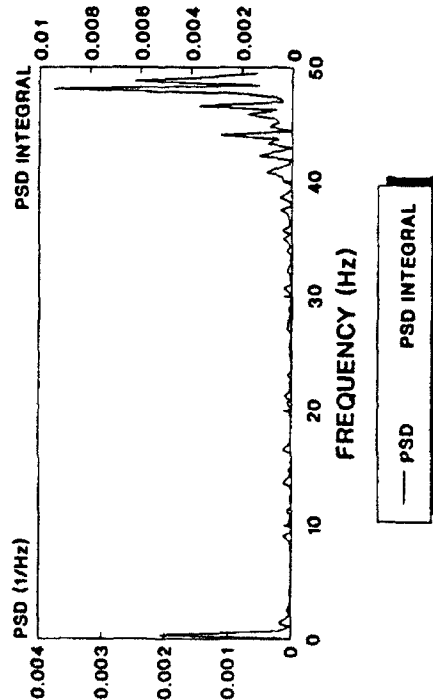
CUBE2 - THETA 00 - AZIMUTH - 000

# MOMENT COEFF - LATERAL 60 FT/SEC NOMINAL



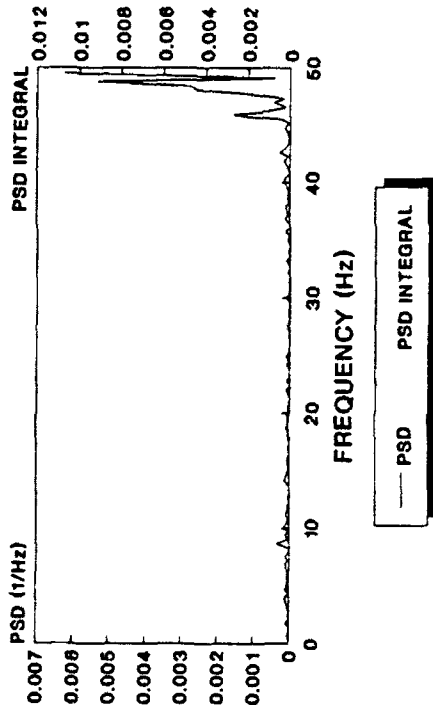
CUBE2 - THETA 00 - AZIMUTH - 000

# MOMENT COEFF - LATERAL 120 FT/SEC NOMINAL



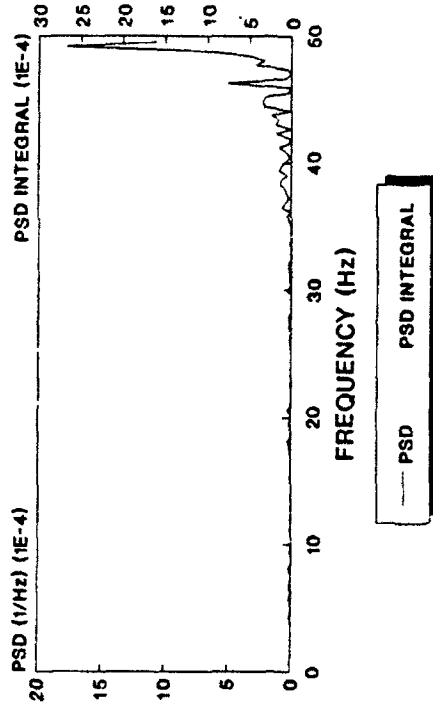
CUBE2 - THETA 00 - AZIMUTH - 000

# MOMENT COEFF - LATERAL 90 FT/SEC NOMINAL



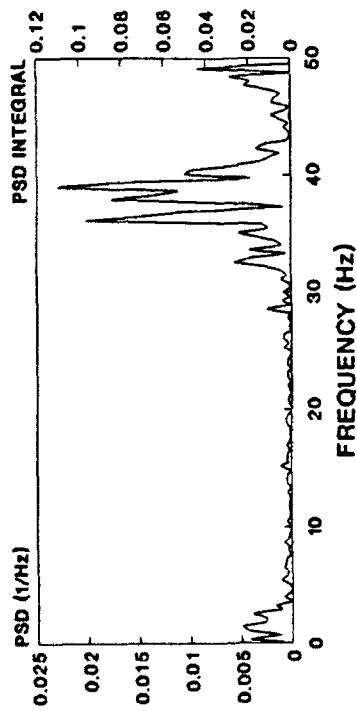
CUBE2 - THETA 00 - AZIMUTH - 000

# MOMENT COEFF - LATERAL 180 FT/SEC NOMINAL



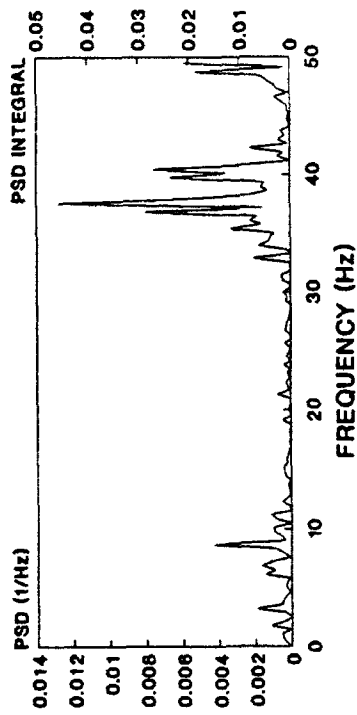
CUBE2 - THETA 00 - AZIMUTH - 000

# MOMENT COEFF - ROLL 60 FT/SEC NOMINAL



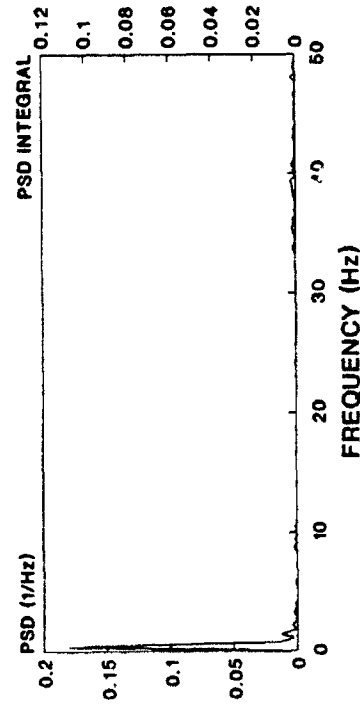
CUBE2 - THETA 00 - AZIMUTH - 000

# MOMENT COEFF - ROLL 90 FT/SEC NOMINAL



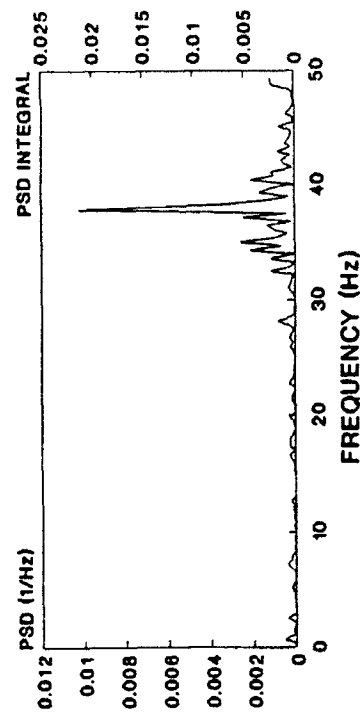
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# MOMENT COEFF - ROLL 120 FT/SEC NOMINAL



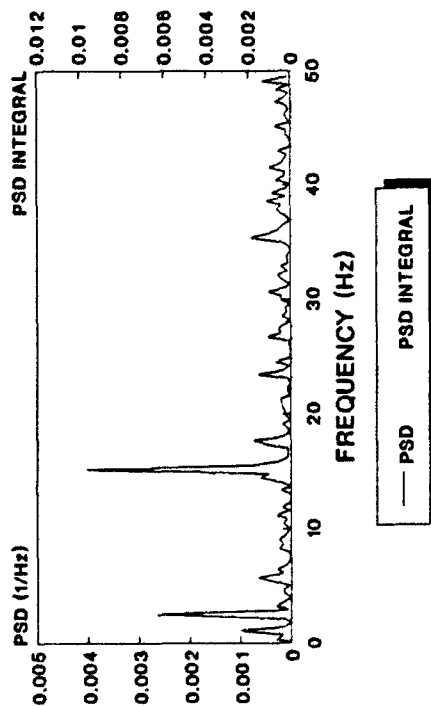
CUBE2 - THETA 00 - AZIMUTH - 000

# MOMENT COEFF - ROLL 180 FT/SEC NOMINAL



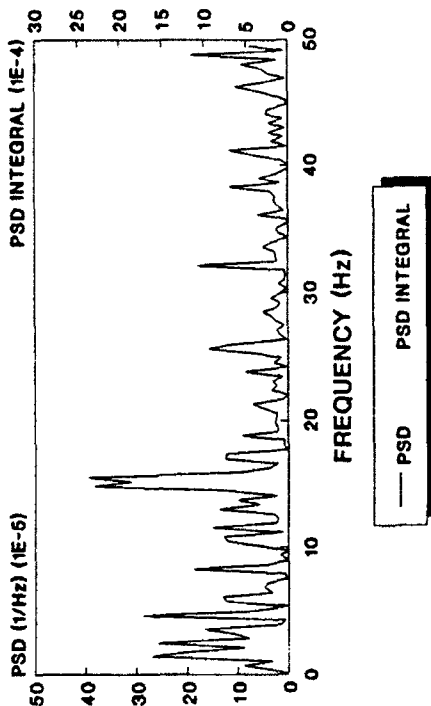
CUBE2 - THETA 00 - AZIMUTH - 000

# FORCE COEFF - NORMAL 60 FT/SEC NOMINAL



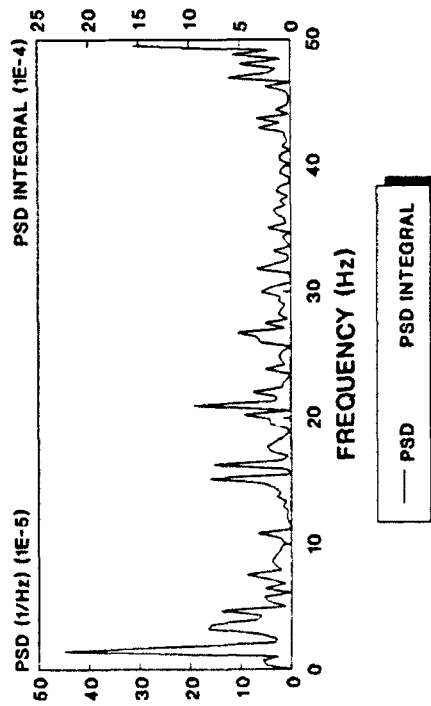
CUBE2 - THETA 00 - AZIMUTH - 030

# FORCE COEFF - NORMAL 90 FT/SEC NOMINAL



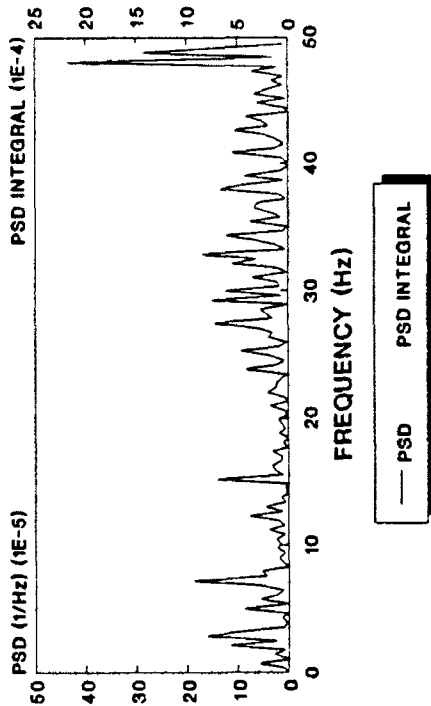
CUBE2 - THETA 00 - AZIMUTH - 030

# FORCE COEFF - NORMAL 120 FT/SEC NOMINAL



CUBE2 - THETA 00 - AZIMUTH - 030

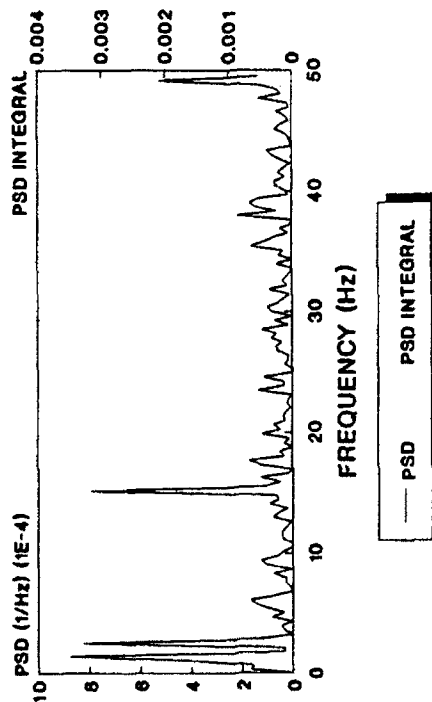
# FORCE COEFF - NORMAL 180 FT/SEC NOMINAL



CUBE2 - THETA 00 - AZIMUTH - 030

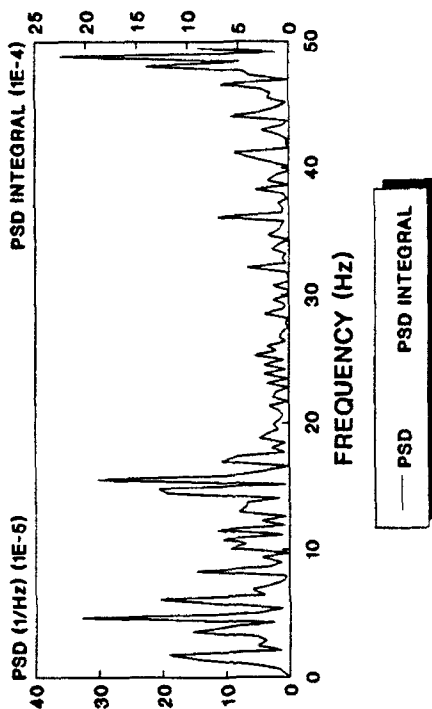


# MOMENT COEFF - NORMAL 60 FT/SEC NOMINAL



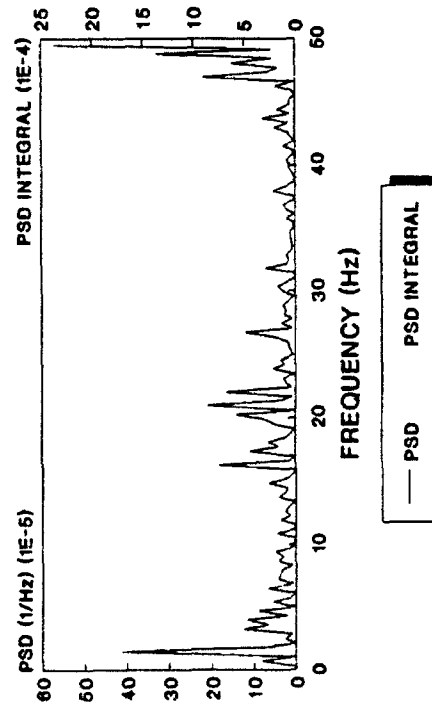
CUBE2 - THETA 00 - AZIMUTH - 030

# MOMENT COEFF - NORMAL 90 FT/SEC NOMINAL



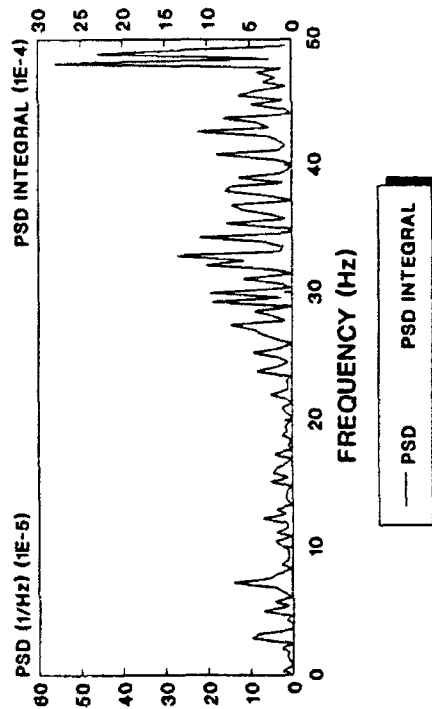
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# MOMENT COEFF - NORMAL 120 FT/SEC NOMINAL



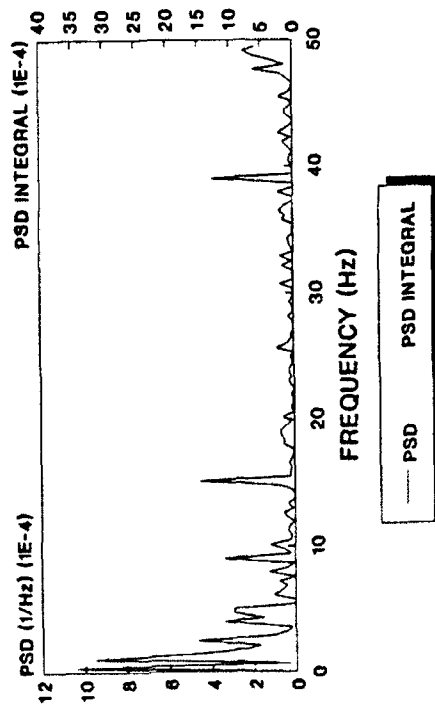
CUBE2 - THETA 00 - AZIMUTH - 030

# MOMENT COEFF - NORMAL 180 FT/SEC NOMINAL



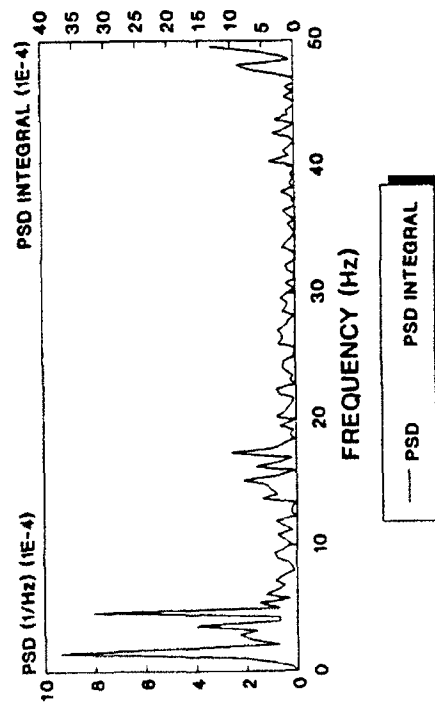
CUBE2 - THETA 00 - AZIMUTH - 030

# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



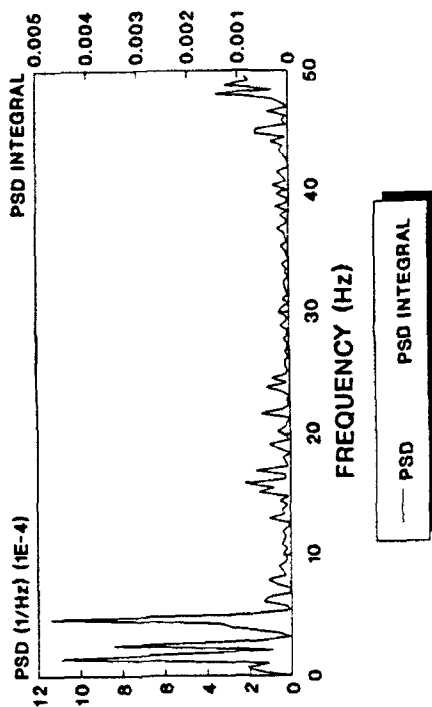
CUBE2 - THETA 00 - AZIMUTH - 030

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



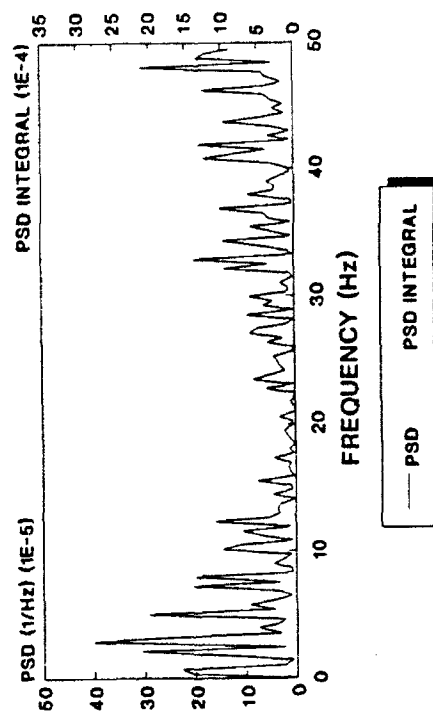
CUBE2 - THETA 00 - AZIMUTH - 030

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



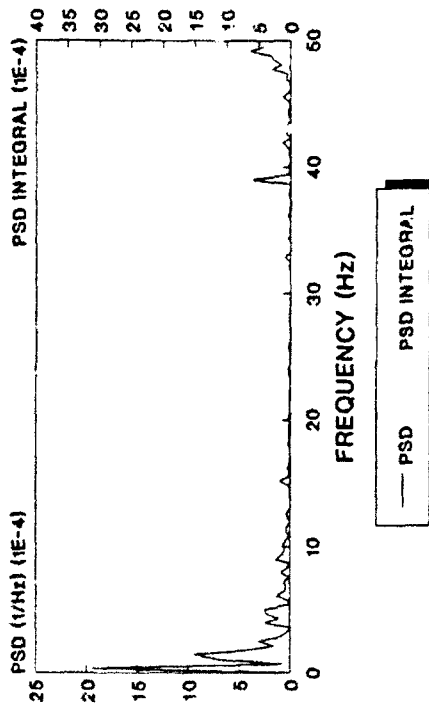
CUBE2 - THETA 00 - AZIMUTH - 030

# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



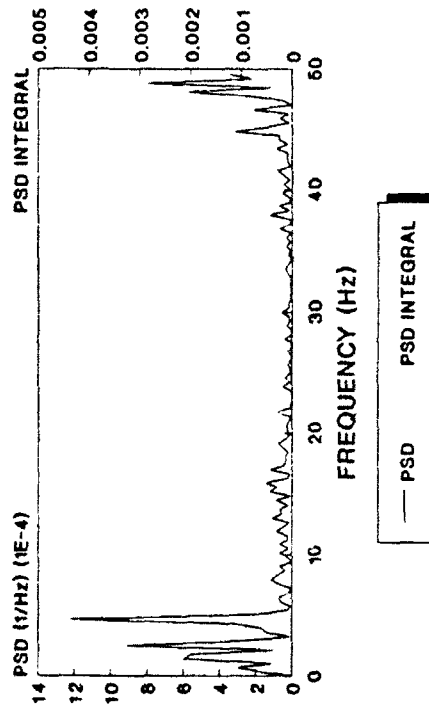
CUBE2 - THETA 00 - AZIMUTH - 030

# MOMENT COEFF - LATERAL 60 FT/SEC NOMINAL



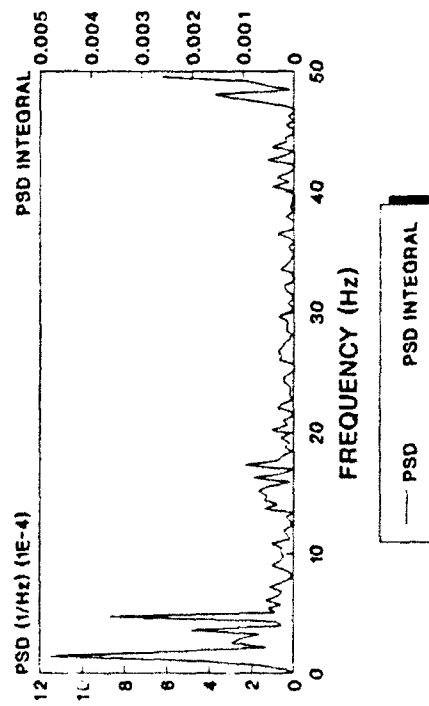
CUBE2 - THETA 00 - AZIMUTH - 030

# MOMENT COEFF - LATERAL 90 FT/SEC NOMINAL



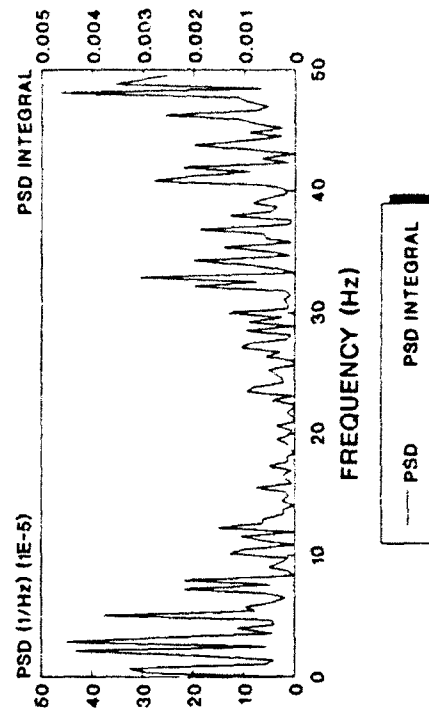
CUBE2 - THETA 00 - AZIMUTH - 030

# MOMENT COEFF - LATERAL 120 FT/SEC NOMINAL



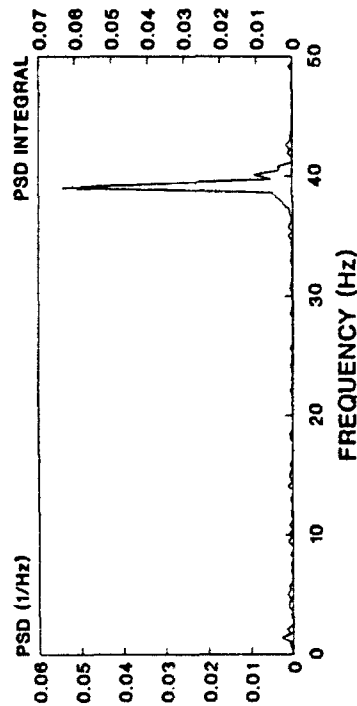
CUBE2 - THETA 00 - AZIMUTH - 030

# MOMENT COEFF - LATERAL 180 FT/SEC NOMINAL



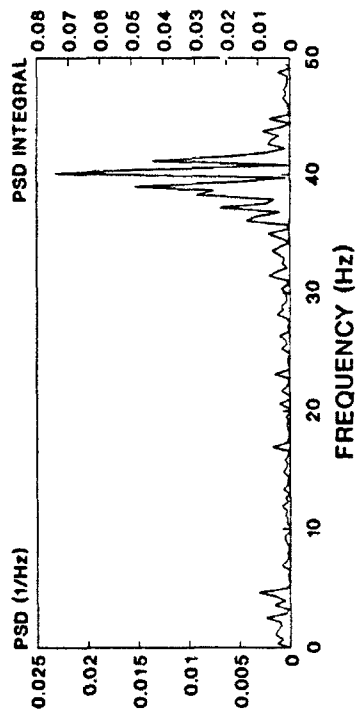
CUBE2 - THETA 00 - AZIMUTH - 030

# MOMENT COEFF - ROLL 60 FT/SEC NOMINAL



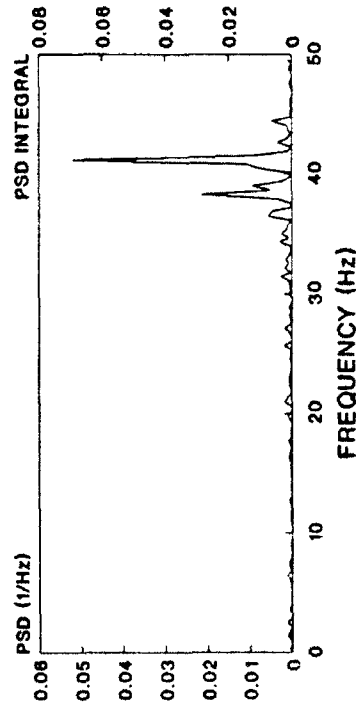
CUBE2 - THETA 00 - AZIMUTH - 030

# MOMENT COEFF - ROLL 90 FT/SEC NOMINAL



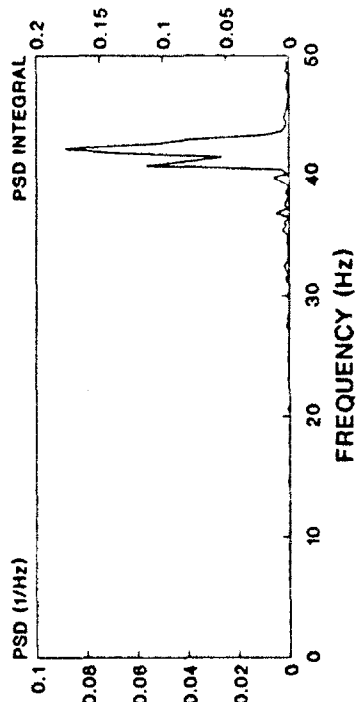
CUBE2 - THETA 00 - AZIMUTH - 030

# MOMENT COEFF - ROLL 120 FT/SEC NOMINAL



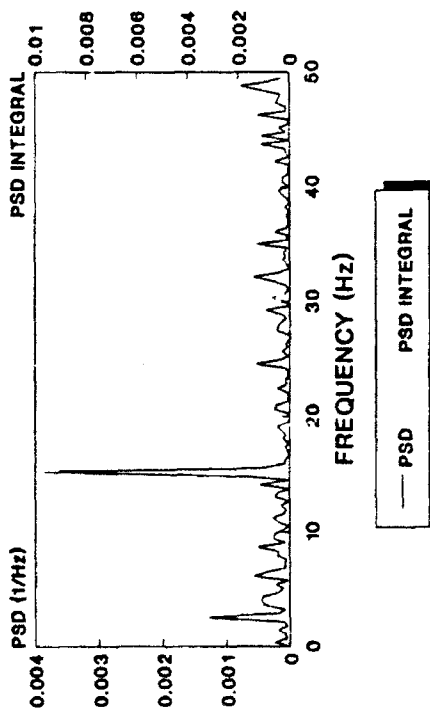
CUBE2 - THETA 00 - AZIMUTH - 030

# MOMENT COEFF - LATERAL 180 FT/SEC NOMINAL



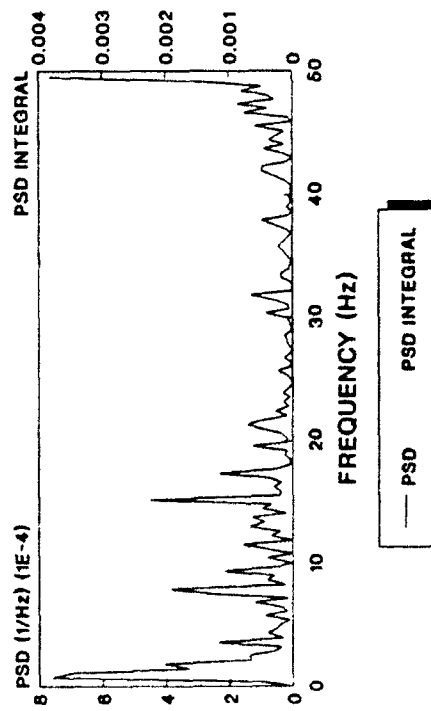
CUBE2 - THETA 00 - AZIMUTH - 030

# FORCE COEFF - NORMAL 60 FT/SEC NOMINAL



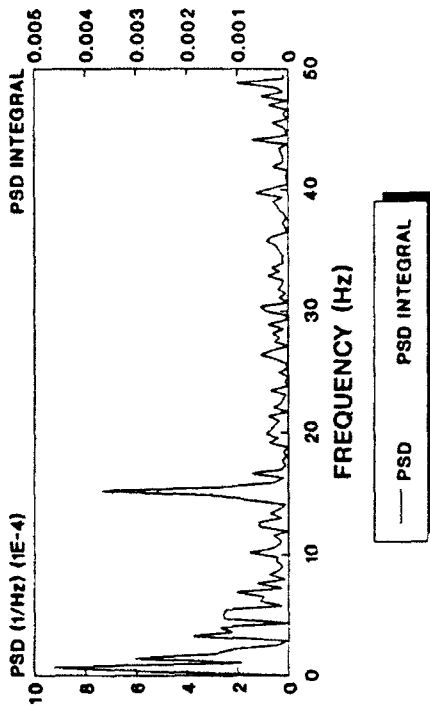
CUBE2 - THETA 00 - AZIMUTH - 045

# FORCE COEFF - NORMAL 120 FT/SEC NOMINAL



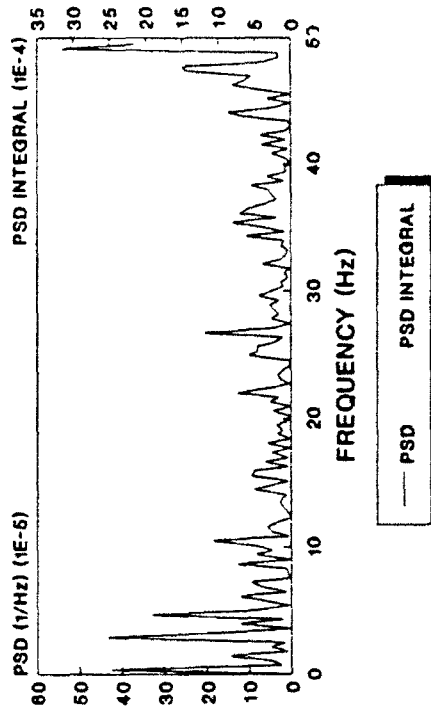
CUBE2 - THETA 00 - AZIMUTH - 045

# FORCE COEFF - NORMAL 90 FT/SEC NOMINAL



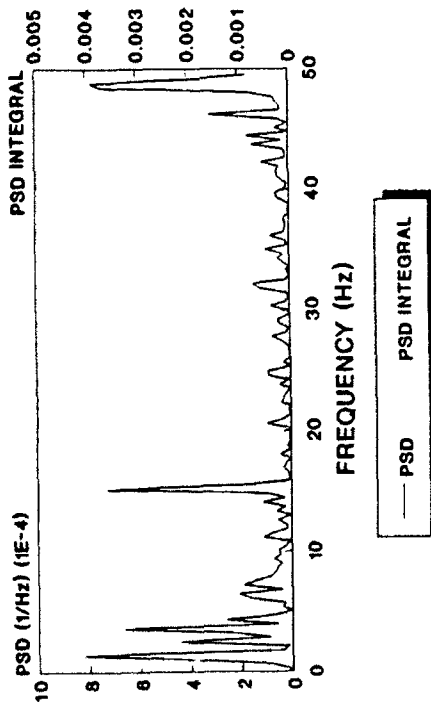
CUBE2 - THETA 00 - AZIMUTH - 045

# FORCE COEFF - NORMAL 180 FT/SEC NOMINAL



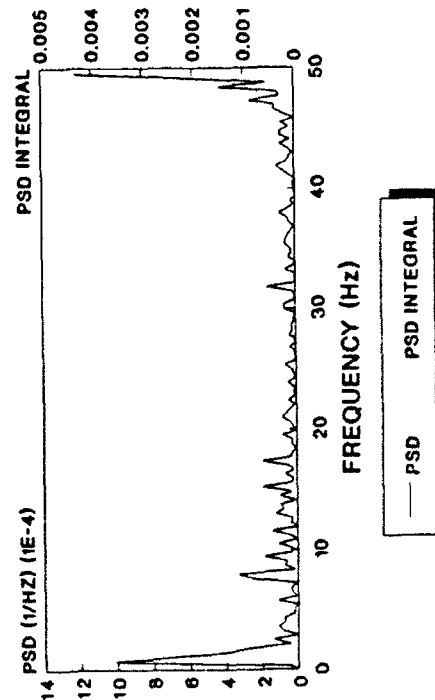
CUBE2 - THETA 00 - AZIMUTH - 045

# MOMENT COEFF - NORMAL 60 FT/SEC NOMINAL



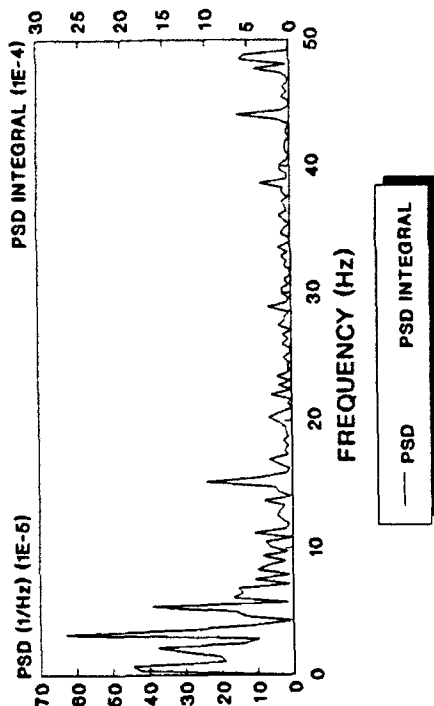
CUBE2 - THETA 00 - AZIMUTH - 045

# MOMENT COEFF - NORMAL 120 FT/SEC NOMINAL



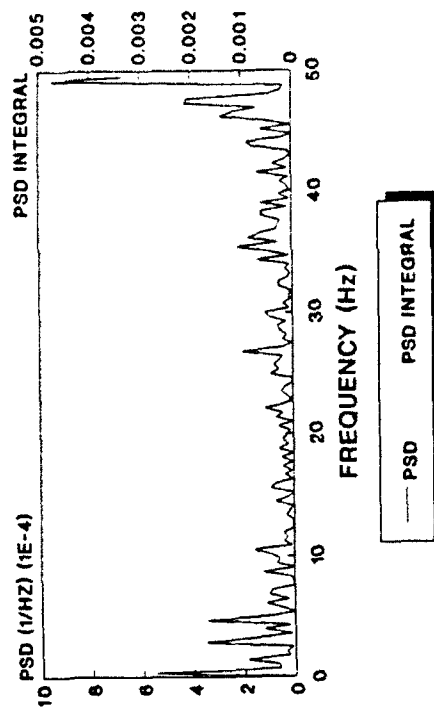
CUBE2 - THETA 00 - AZIMUTH - 045

# MOMENT COEFF - NORMAL 90 FT/SEC NOMINAL



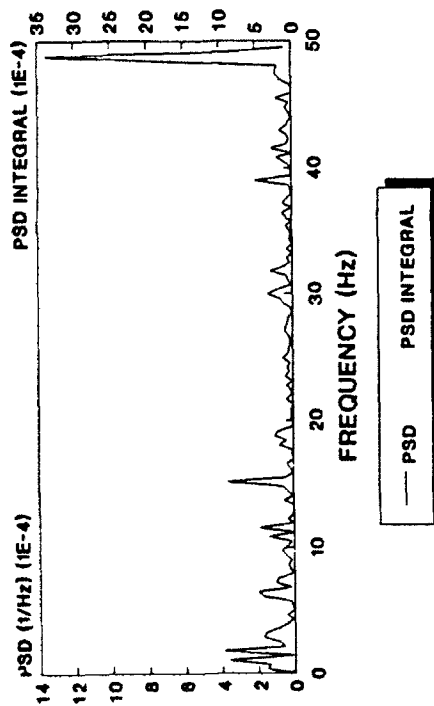
CUBE2 - THETA 00 - AZIMUTH - 045

# MOMENT COEFF - NORMAL 180 FT/SEC NOMINAL



CUBE2 - THETA 00 - AZIMUTH - 045

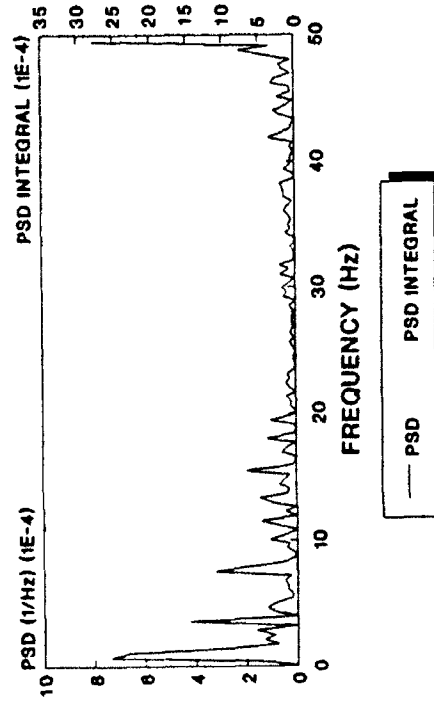
# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



CUBE2 - THETA 00 - AZIMUTH - 045

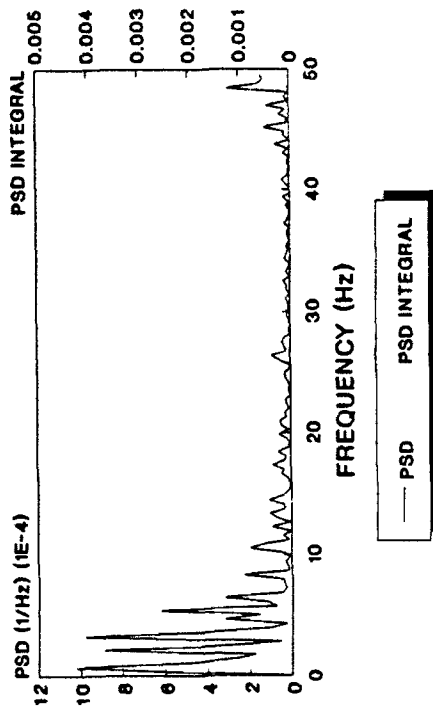
179

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



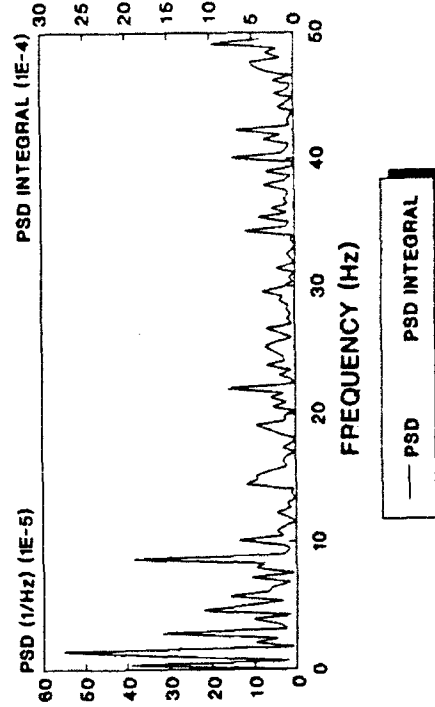
CUBE2 - THETA 00 - AZIMUTH - 045

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



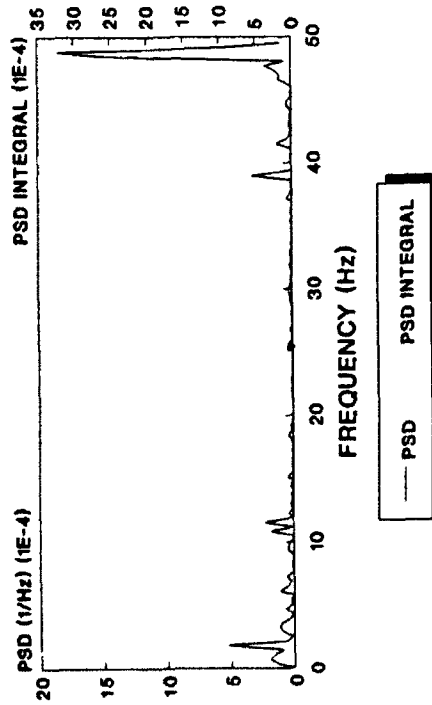
CUBE2 - THETA 00 - AZIMUTH - 045

# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



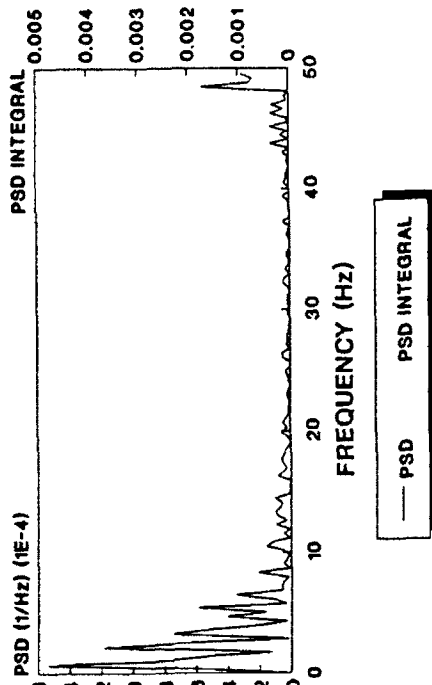
CUBE2 - THETA 00 - AZIMUTH - 045

# MOMENT COEFF - LATERAL 60 FT/SEC NOMINAL



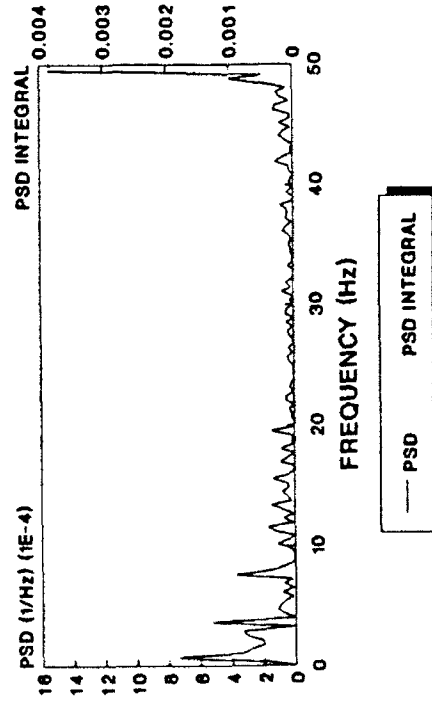
CUBE2 - THETA 00 - AZIMUTH - 045

# MOMENT COEFF - LATERAL 90 FT/SEC NOMINAL



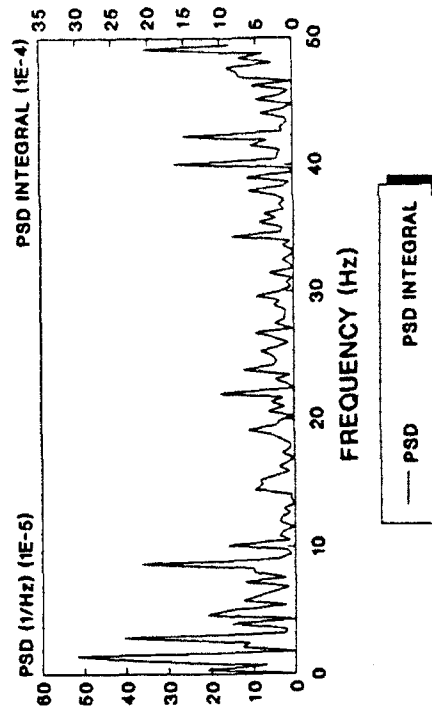
CUBE2 - THETA 00 - AZIMUTH - 045

# MOMENT COEFF - LATERAL 120 FT/SEC NOMINAL



CUBE2 - THETA 00 - AZIMUTH - 045

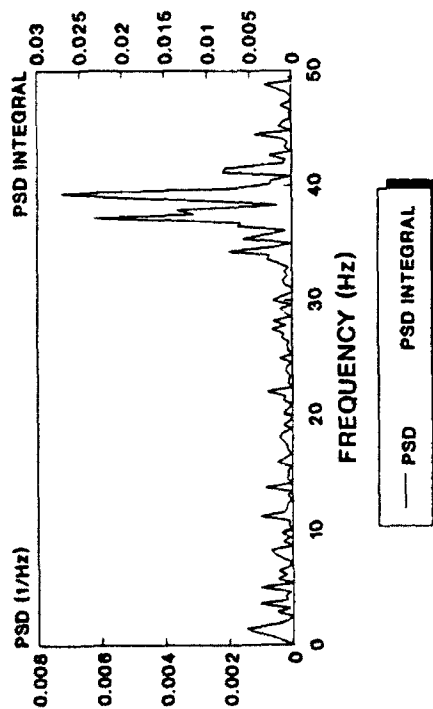
# MOMENT COEFF - LATERAL 180 FT/SEC NOMINAL



CUBE2 - THETA 00 - AZIMUTH - 045

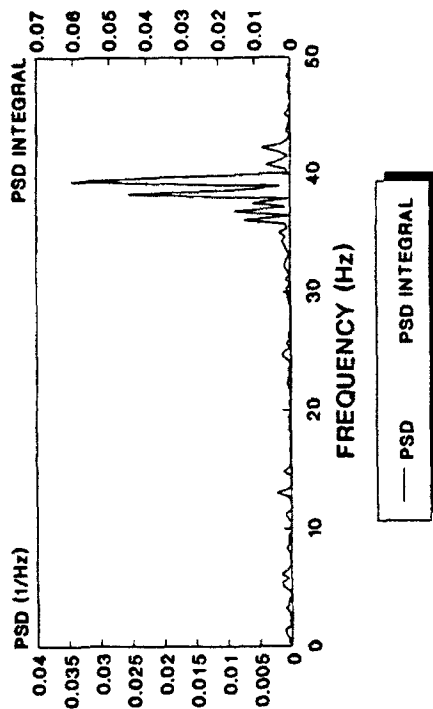


# MOMENT COEFF - ROLL 60 FT/SEC NOMINAL



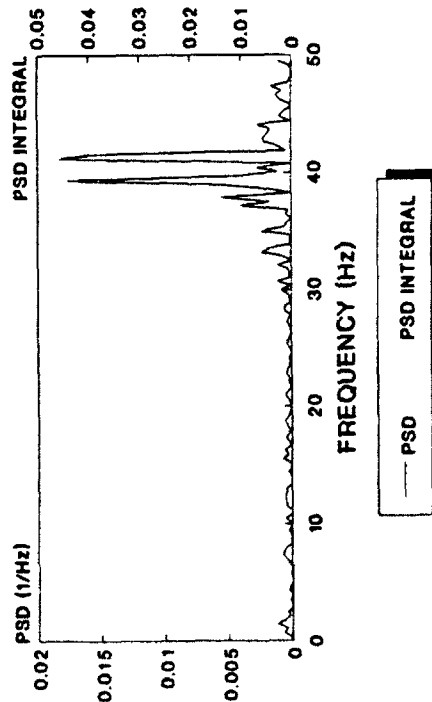
CUBE2 - THETA 00 - AZIMUTH - 045

# MOMENT COEFF - ROLL 90 FT/SEC NOMINAL



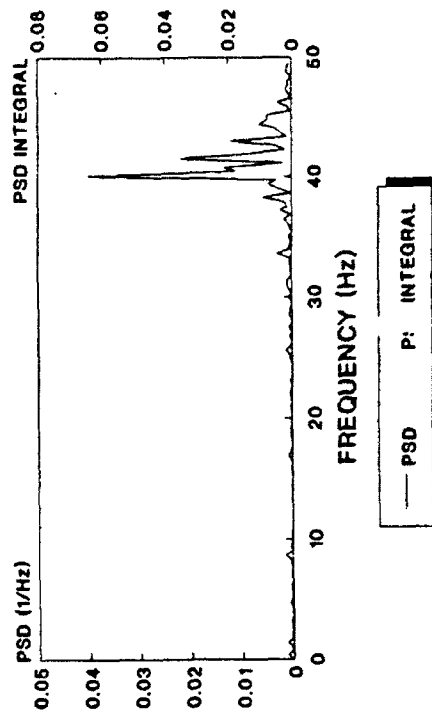
CUBE2 - THETA 00 - AZIMUTH - 045

# MOMENT COEFF - ROLL 120 FT/SEC NOMINAL



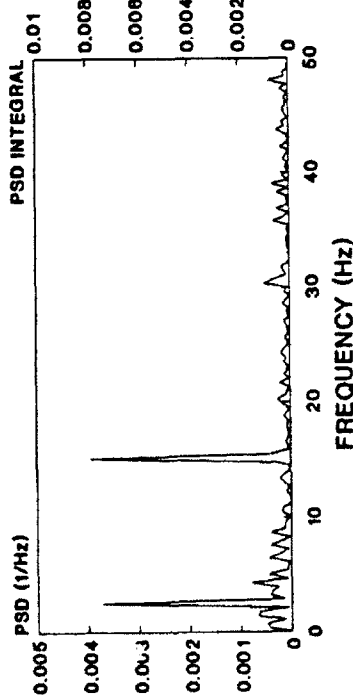
CUBE2 - THETA 00 - AZIMUTH - 045

# MOMENT COEFF - ROLL 180 FT/SEC NOMINAL



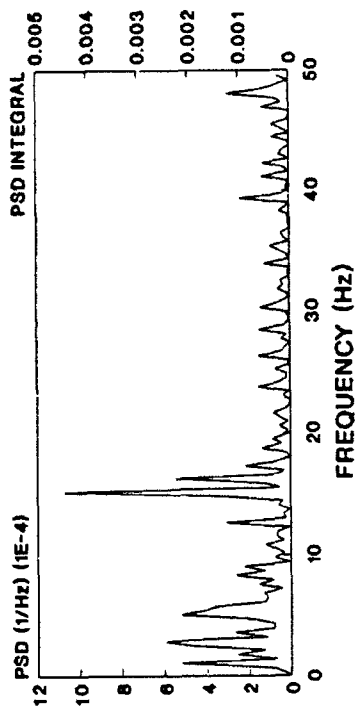
CUBE2 - THETA 00 - AZIMUTH - 045

# FORCE COEFF - NORMAL 60 FT/SEC NOMINAL



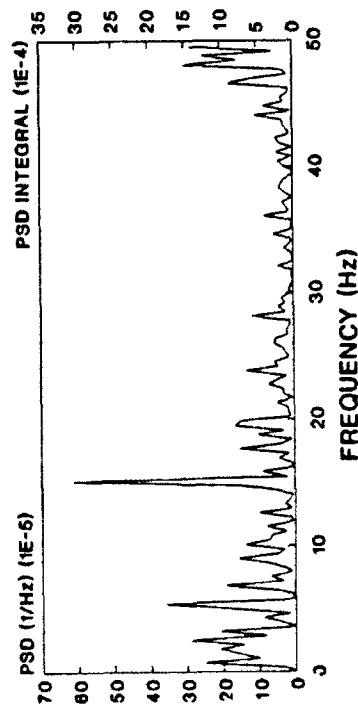
CUBE2 - THETA 00 - AZIMUTH - 060

# FORCE COEFF - NORMAL 90 FT/SEC NOMINAL



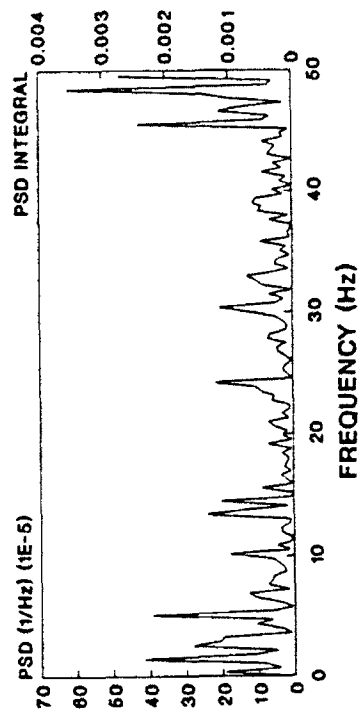
CUBE2 - THETA 00 - AZIMUTH - 060

# FORCE COEFF - NORMAL 120 FT/SEC NOMINAL



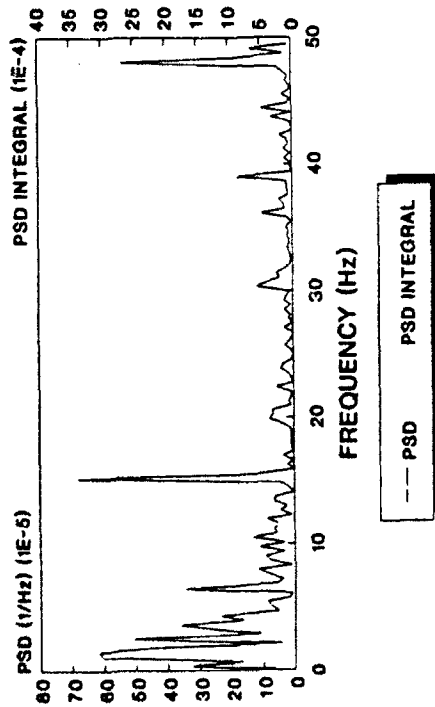
CUBE2 - THETA 00 - AZIMUTH - 060

# FORCE COEFF - NORMAL 180 FT/SEC NOMINAL



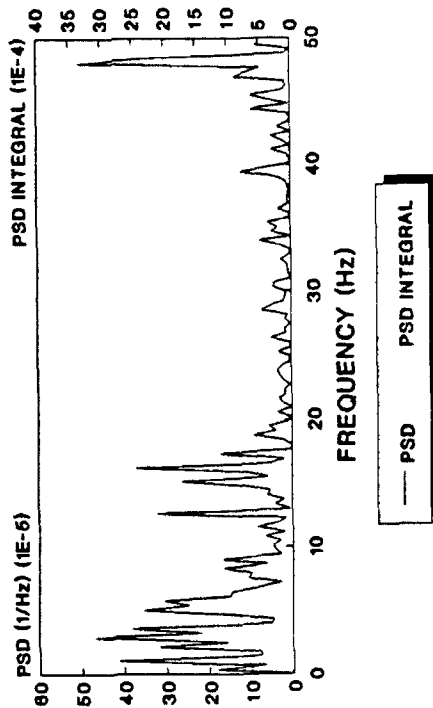
CUBE2 - THETA 00 - AZIMUTH - 060

# MOMENT COEFF - NORMAL 60 FT/SEC NOMINAL



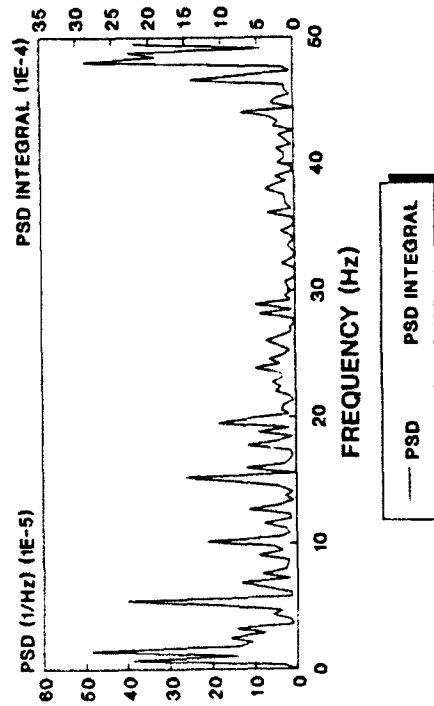
CUBE2 - THETA 00 - AZIMUTH - 060

# MOMENT COEFF - NORMAL 90 FT/SEC NOMINAL



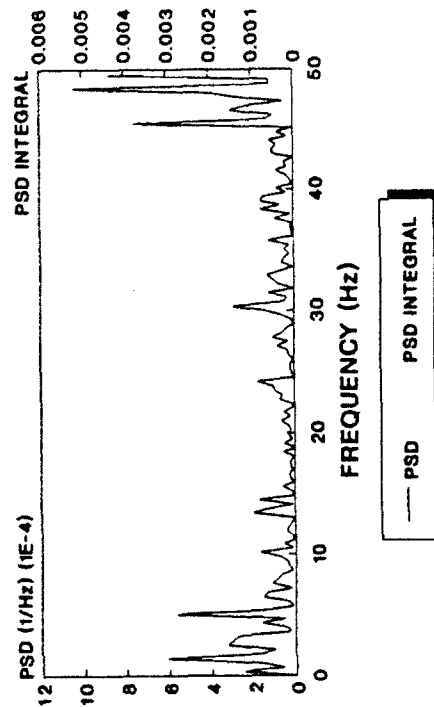
CUBE2 - THETA 00 - AZIMUTH - 060

# MOMENT COEFF - NORMAL 120 FT/SEC NOMINAL



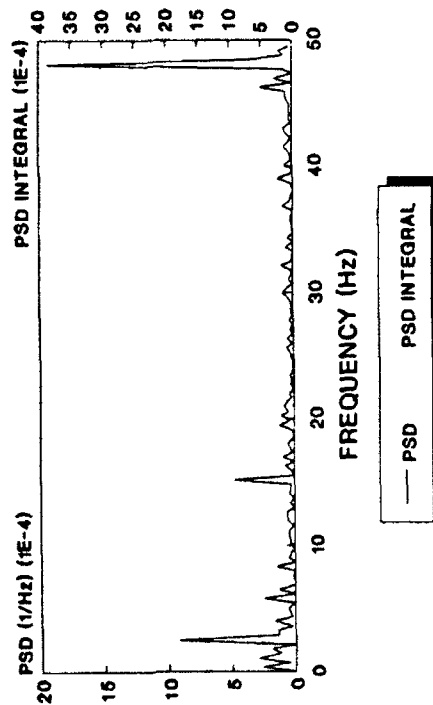
CUBE2 - THETA 00 - AZIMUTH - 060

# MOMENT COEFF - NORMAL 180 FT/SEC NOMINAL



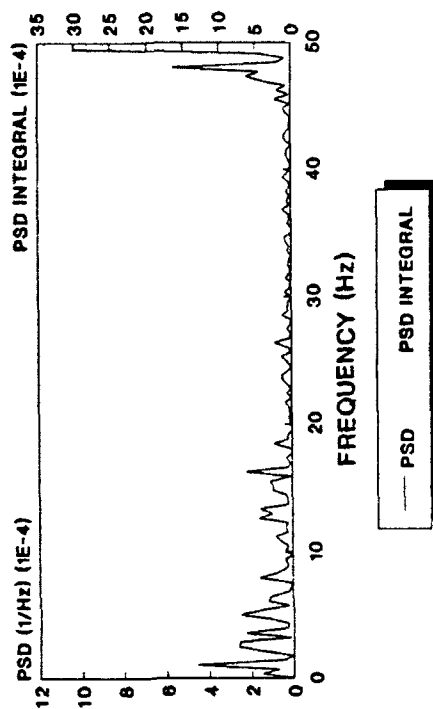
CUBE2 - THETA 00 - AZIMUTH - 060

# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



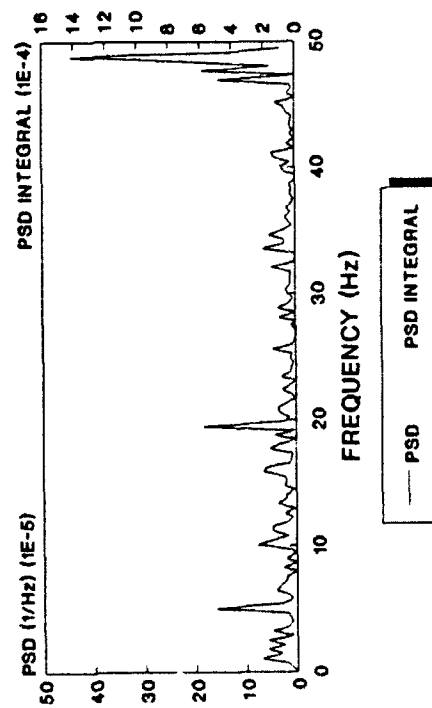
CUBE2 - THETA 00 - AZIMUTH - 060

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



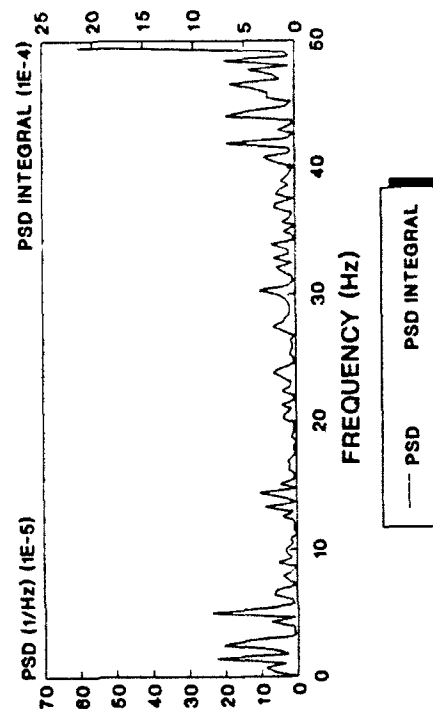
CUBE2 - THETA 00 - AZIMUTH - 060

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



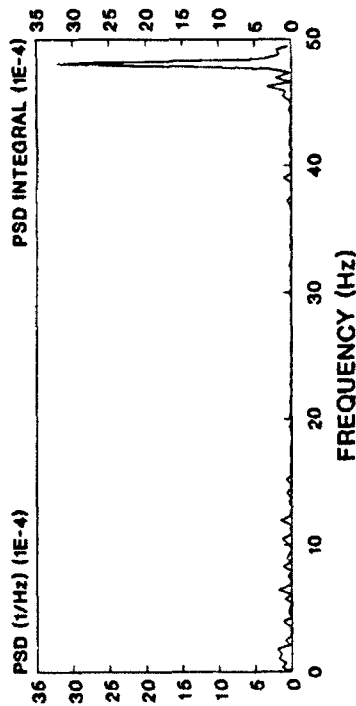
CUBE2 - THETA 00 - AZIMUTH - 060

# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



CUBE2 - THETA 00 - AZIMUTH - 060

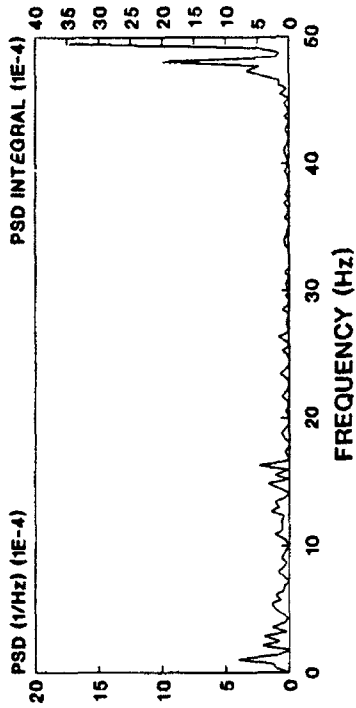
# MOMENT COEFF - LATERAL 60 FT/SEC NOMINAL



PSD PSD INTEGRAL

CUBE2 - THETA 00 - AZIMUTH - 060

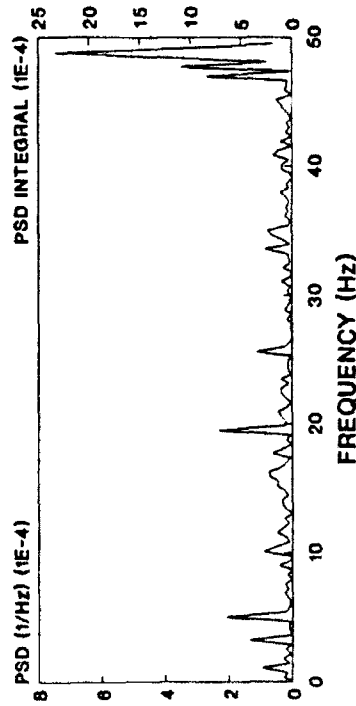
# MOMENT COEFF - LATERAL 90 FT/SEC NOMINAL



PSD PSD INTEGRAL

CUBE2 - THETA 00 - AZIMUTH - 060

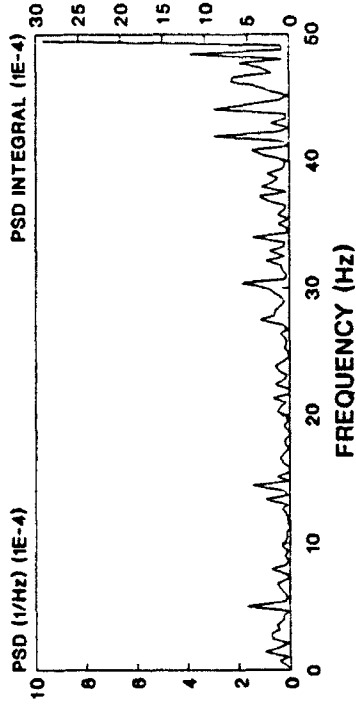
# MOMENT COEFF - LATERAL 120 FT/SEC NOMINAL



PSD PSD INTEGRAL

CUBE2 - THETA 00 - AZIMUTH - 060

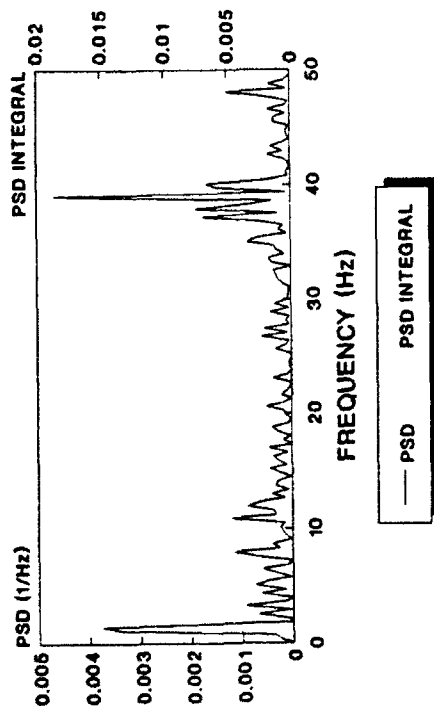
# MOMENT COEFF - LATERAL 180 FT/SEC NOMINAL



PSD PSD INTEGRAL

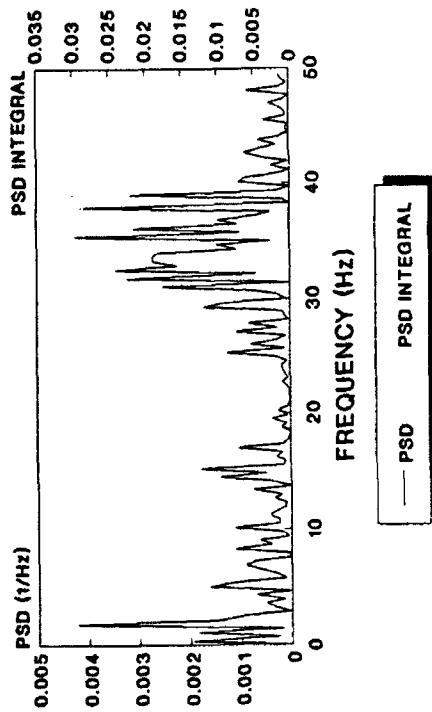
CUBE2 - THETA 00 - AZIMUTH - 060

# MOMENT COEFF - ROLL 60 FT/SEC NOMINAL



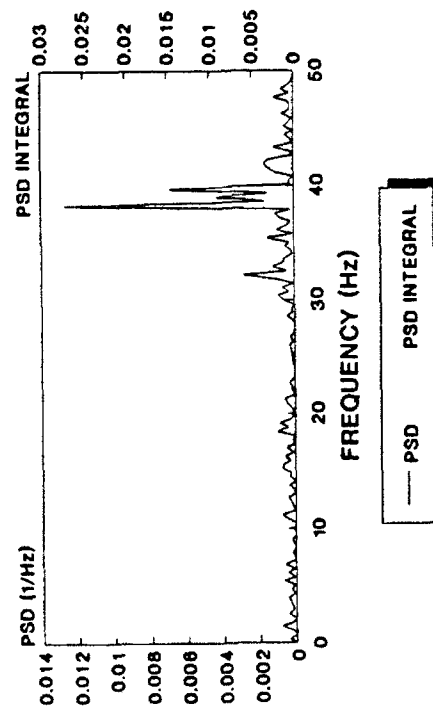
CUBE2 - THETA 00 - AZIMUTH - 060

# MOMENT COEFF - ROLL 90 FT/SEC NOMINAL



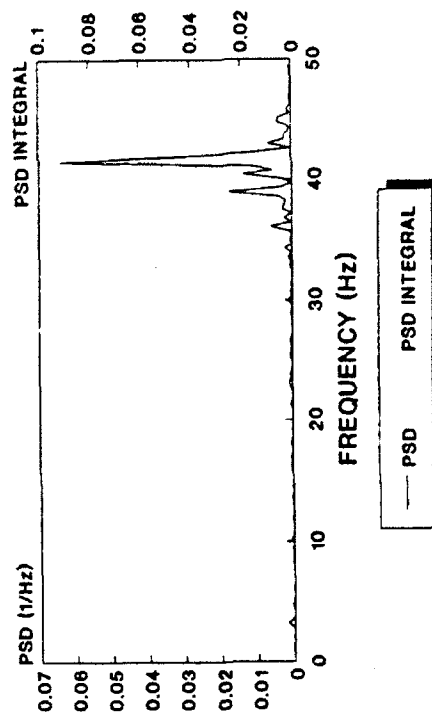
CUBE2 - THETA 00 - AZIMUTH - 060

# MOMENT COEFF - ROLL 120 FT/SEC NOMINAL



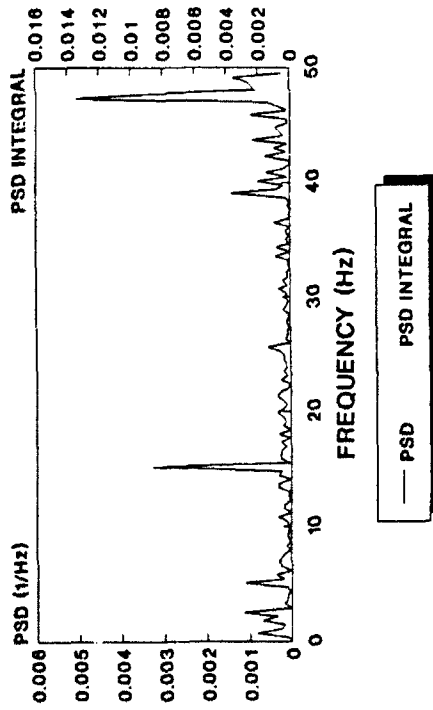
CUBE2 - THETA 00 - AZIMUTH - 060

# MOMENT COEFF - ROLL 180 FT/SEC NOMINAL



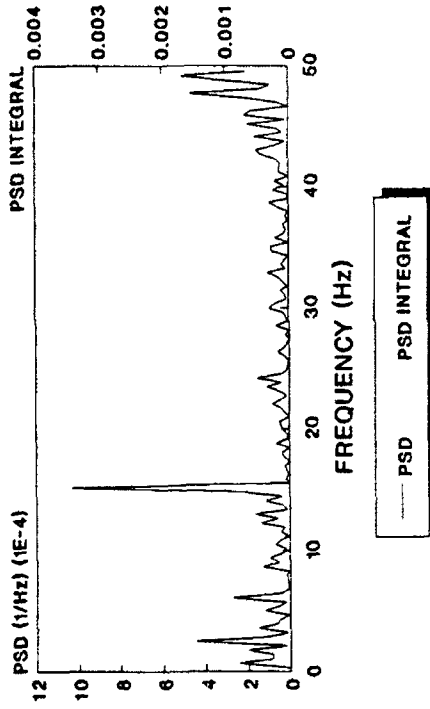
CUBE2 - THETA 00 - AZIMUTH - 060

# FORCE COEFF - NORMAL 60 FT/SEC NOMINAL



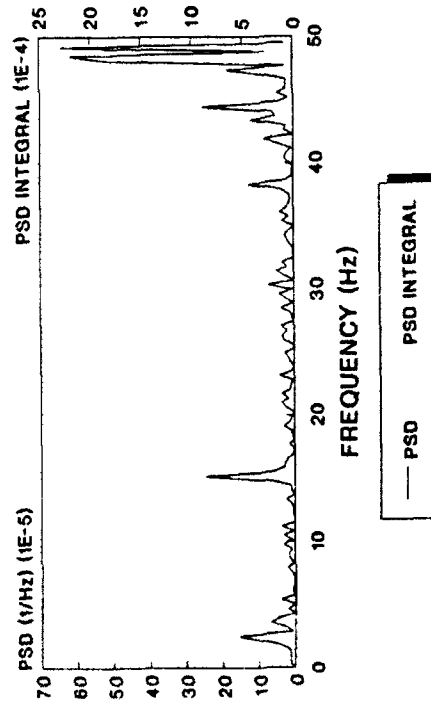
CUBE2 - THETA 00 - AZIMUTH - 090

# FORCE COEFF - NORMAL 90 FT/SEC NOMINAL



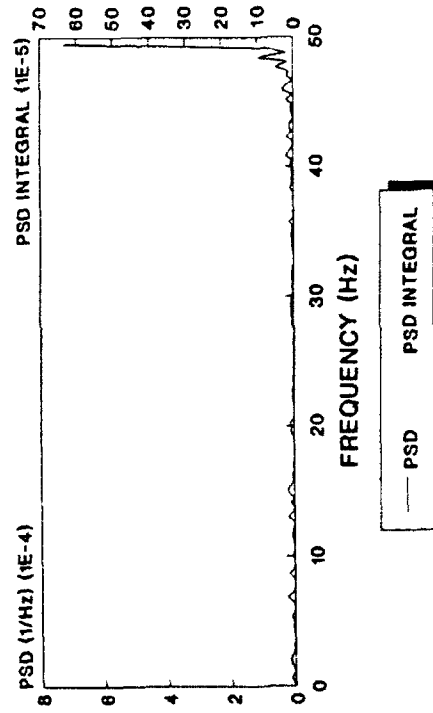
CUBE2 - THETA 00 - AZIMUTH - 090

# FORCE COEFF - NORMAL 120 FT/SEC NOMINAL



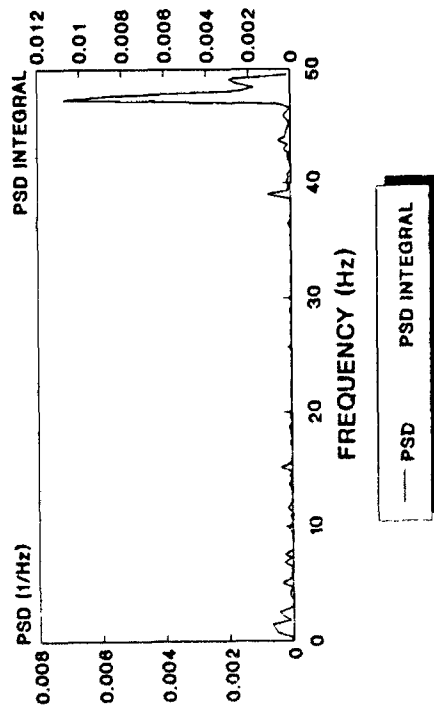
CUBE2 - THETA 00 - AZIMUTH - 090

# FORCE COEFF - NORMAL 180 FT/SEC NOMINAL



CUBE2 - THETA 00 - AZIMUTH - 090

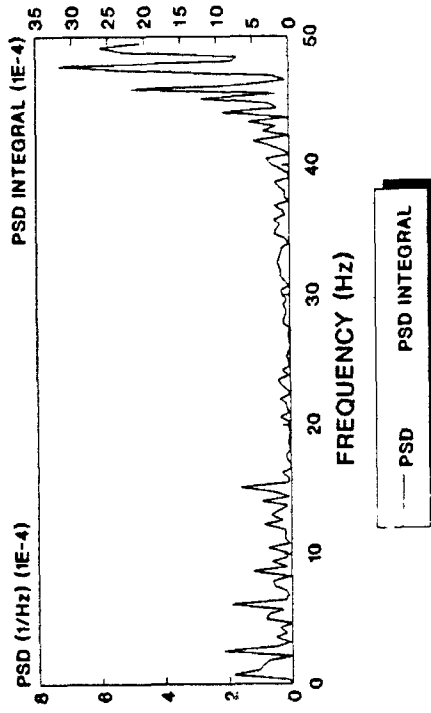
# MOMENT COEFF - NORMAL 60 FT/SEC NOMINAL



CUBE2 - THETA 00 - AZIMUTH - 090

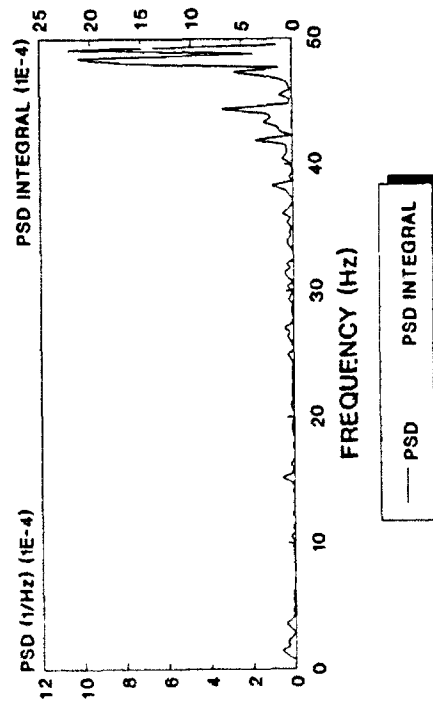
188

# MOMENT COEFF - NORMAL 90 FT/SEC NOMINAL



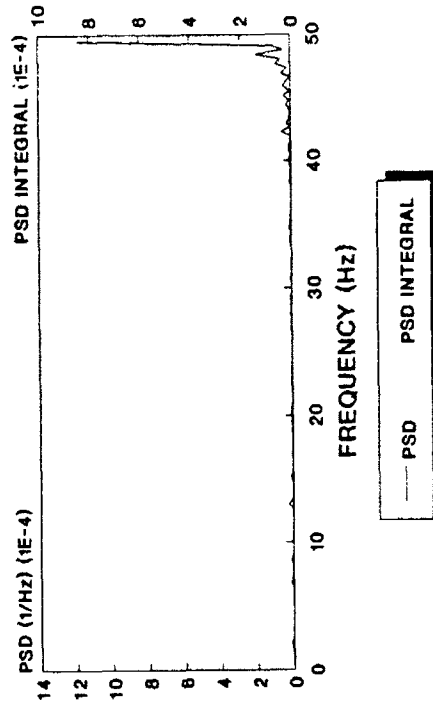
CUBE2 - THETA 00 - AZIMUTH - 090

# MOMENT COEFF - NORMAL 120 FT/SEC NOMINAL



CUBE2 - THETA 00 - AZIMUTH - 090

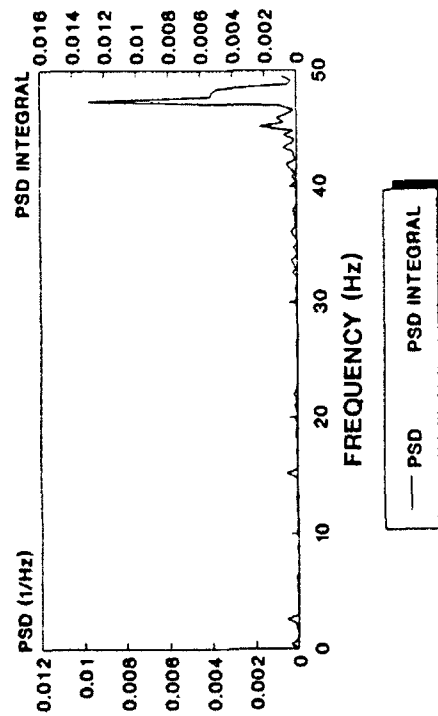
# MOMENT COEFF - NORMAL 180 FT/SEC NOMINAL



CUBE2 - THETA 00 - AZIMUTH - 090

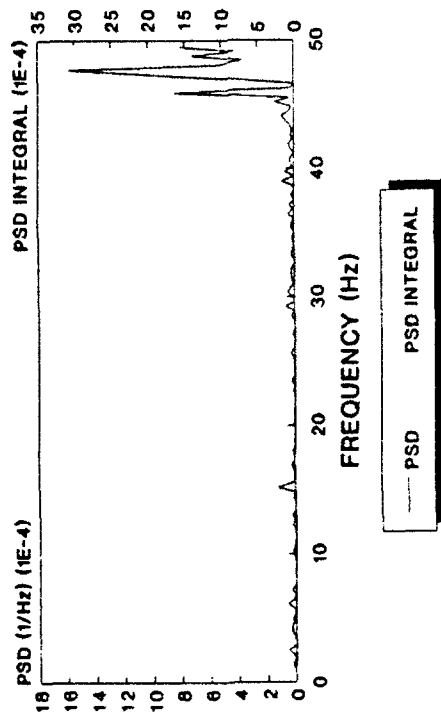


# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



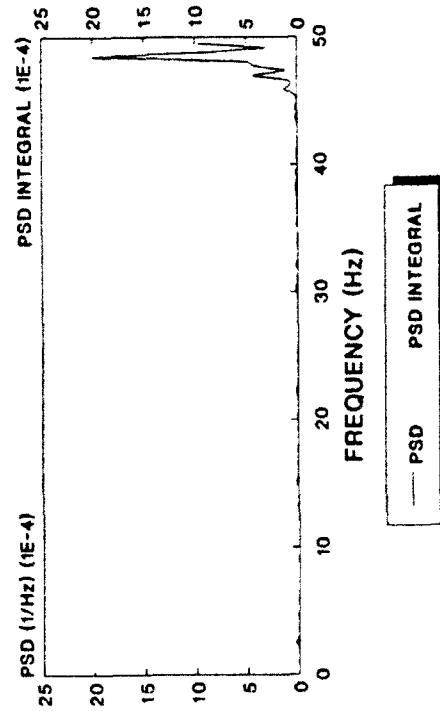
CUBE2 - THETA 00 - AZIMUTH - 090

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



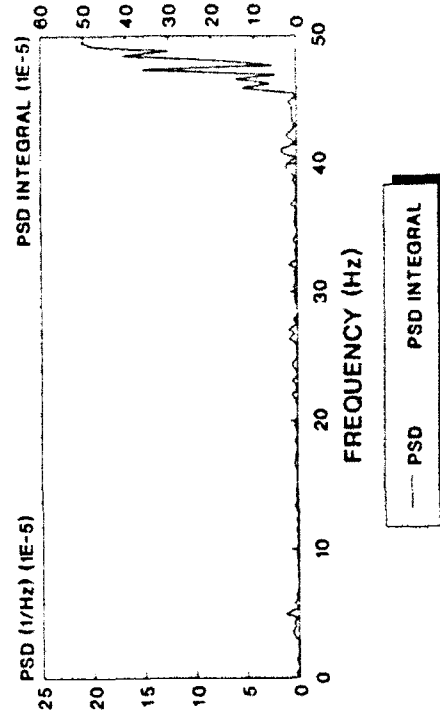
CUBE2 - THETA 00 - AZIMUTH - 090

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



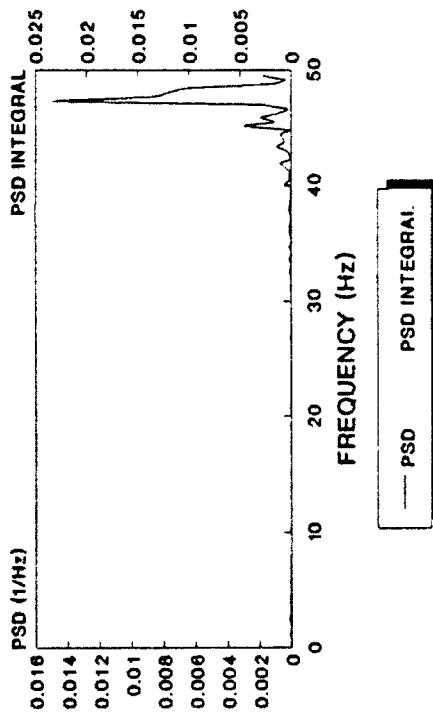
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# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



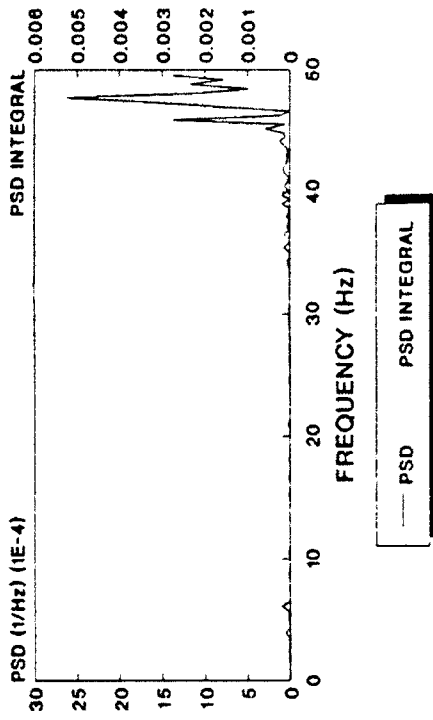
CUBE2 - THETA 00 - AZIMUTH - 090

# MOMENT COEFF - LATERAL 60 FT/SEC NOMINAL



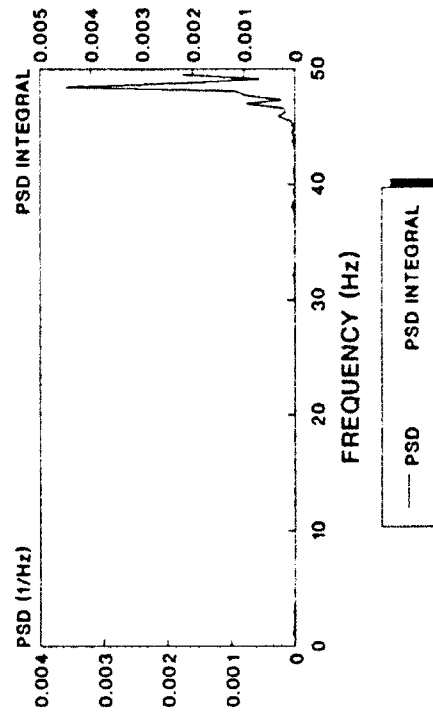
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# MOMENT COEFF - LATERAL 90 FT/SEC NOMINAL



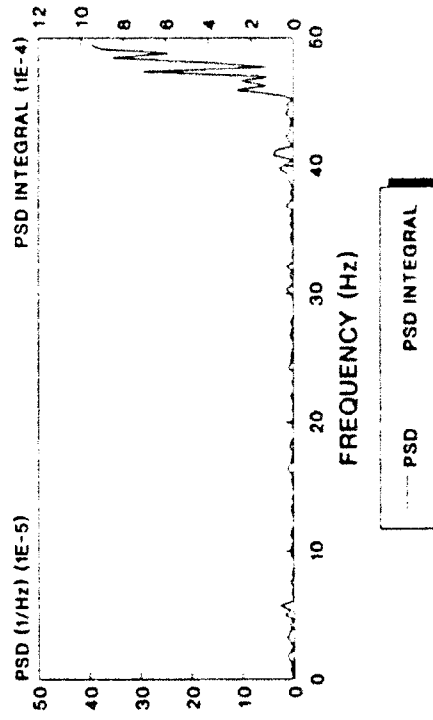
CUBE2 - THETA 00 - AZIMUTH - 090

# MOMENT COEFF - LATERAL 120 FT/SEC NOMINAL



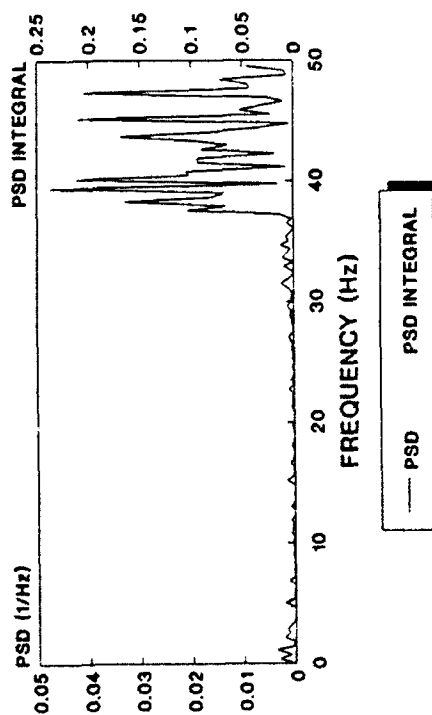
CUBE2 - THETA 00 - AZIMUTH - 090

# MOMENT COEFF - LATERAL 180 FT/SEC NOMINAL



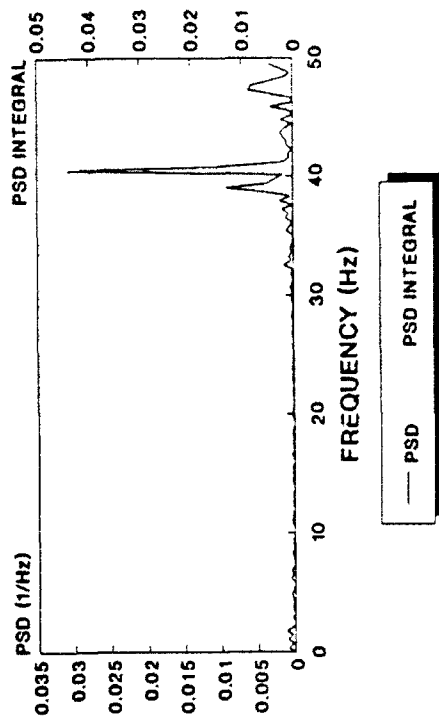
CUBE2 - THETA 00 - AZIMUTH - 090

# MOMENT COEFF - ROLL 60 FT/SEC NOMINAL



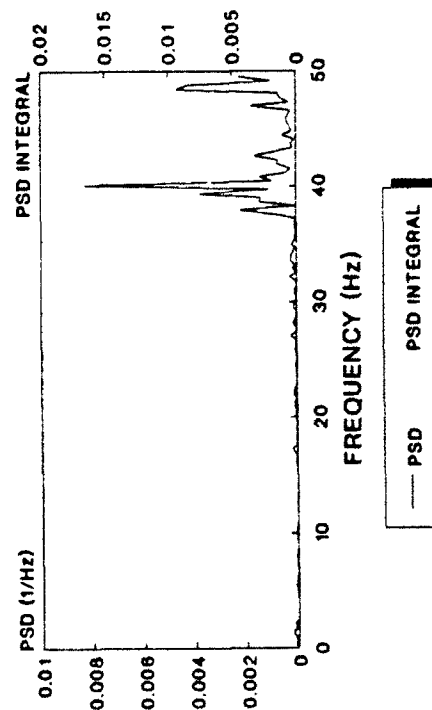
CUBE2 - THETA 00 - AZIMUTH - 090

# MOMENT COEFF - ROLL 90 FT/SEC NOMINAL



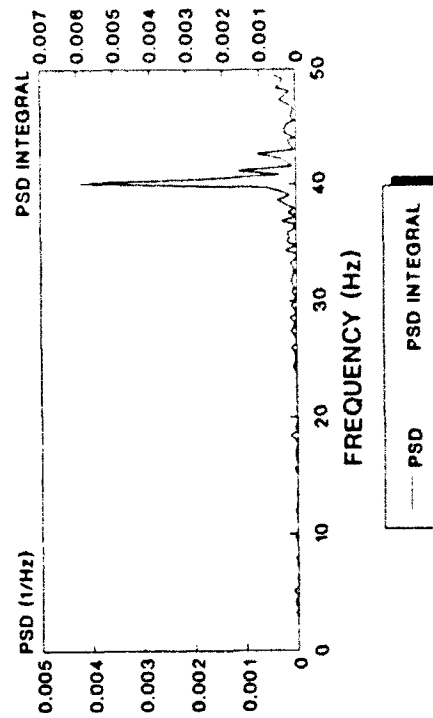
CUBE2 - THETA 00 - AZIMUTH - 090

# MOMENT COEFF - ROLL 120 FT/SEC NOMINAL



CUBE2 - THETA 00 - AZIMUTH - 090

# MOMENT COEFF - ROLL 180 FT/SEC NOMINAL



CUBE2 - THETA 00 - AZIMUTH - 090

## DATA REPORT

SHAPE:	CUBE (ROUNDED)
DECLINATION [THETA (degrees)]:	30
DIMENSIONS [LxWxH (in)]:	9.0 x 8.0 x 8.9
WEIGHT (gm):	1575.4
TORSION FREQUENCY (Hz):	36
LATERAL (SIDE BEND) FREQUENCY (Hz):	61
NORMAL (AFT BEND) FREQUENCY (Hz):	74
AZIMUTHS (degrees):	0, 30, 45, 60, 90, 120, 135, 150, 180

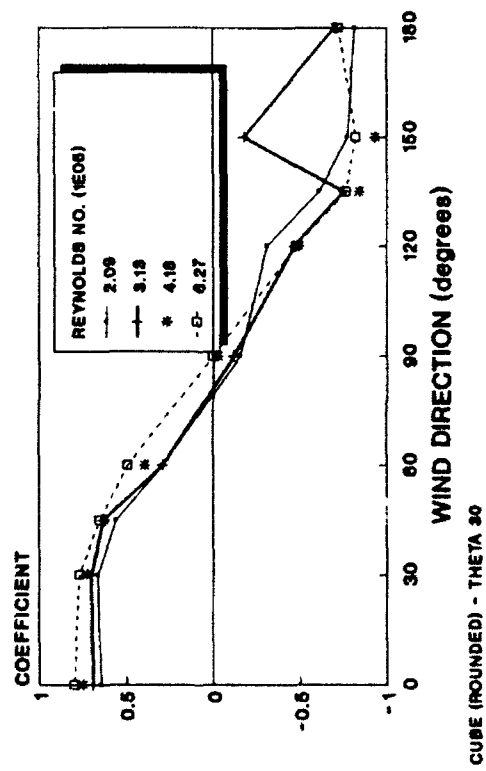
### GRAPH CORRECTIONS:

- The mean value of the **ROLL** moment coefficients should be divided by 12.
- The PSD and PSD Integral values of the **ROLL** moment coefficients should be divided by 144.

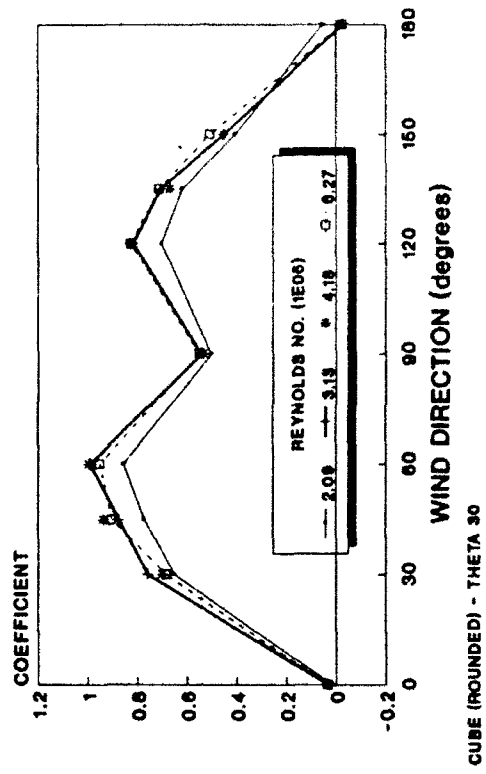
### OBSERVATIONS:

- Very good shedding seen in the data at 135 degrees azimuth.
- Good shedding can be seen in the lateral data at 45 degrees azimuth, and in the normal, lateral, and roll data at 120 and 150 degrees azimuth.
- Poor shedding is seen in the data at 30 degrees.
- In comparison to the sharp edged cube at 30 degrees declination, it appears that rounded edges seem to reduce the shedding.

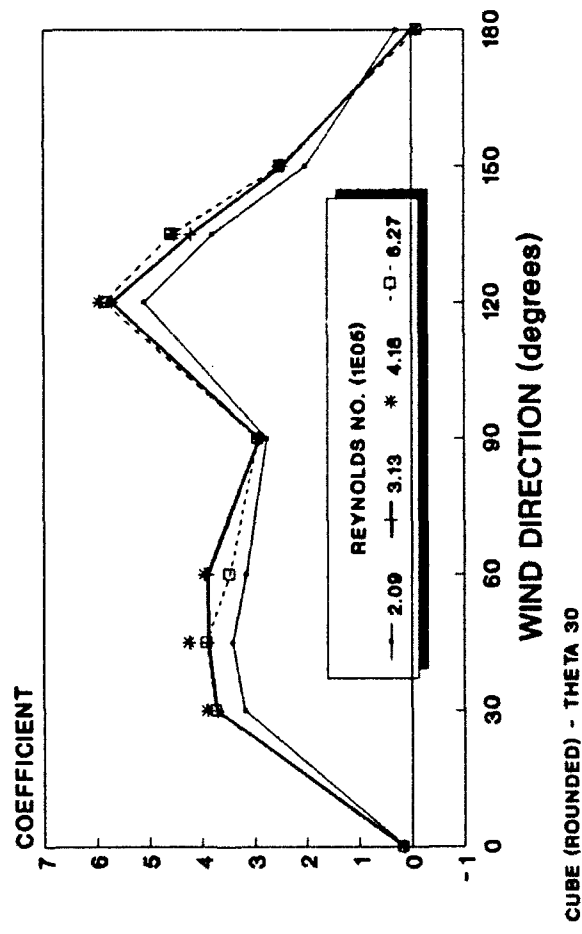
# MEAN FORCE COEFFICIENT NORMAL DIRECTION



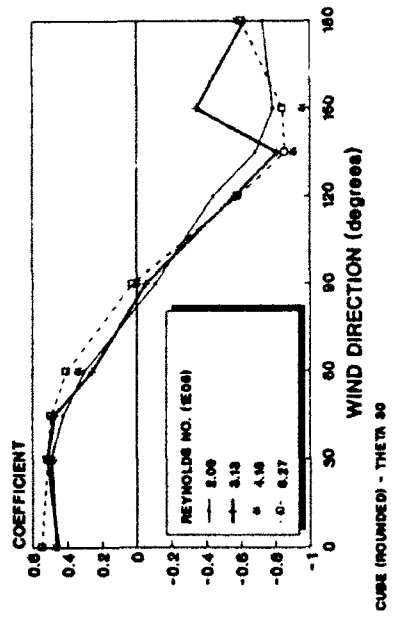
# MEAN FORCE COEFFICIENT LATERAL DIRECTION



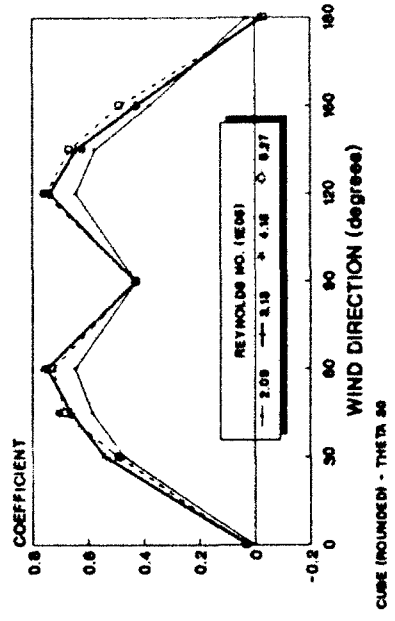
# MEAN MOMENT COEFFICIENT ROLL DIRECTION



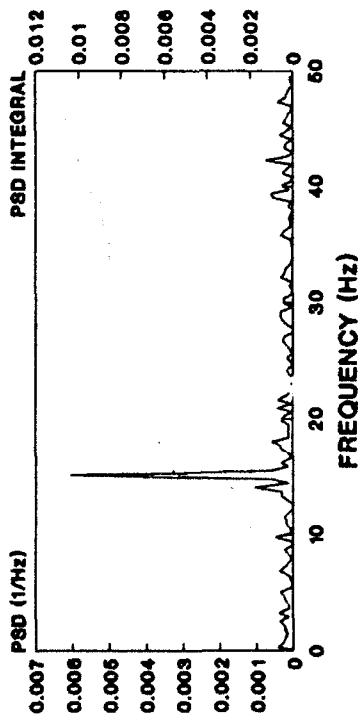
# MEAN MOMENT COEFFICIENT NORMAL DIRECTION



# MEAN MOMENT COEFFICIENT LATERAL DIRECTION

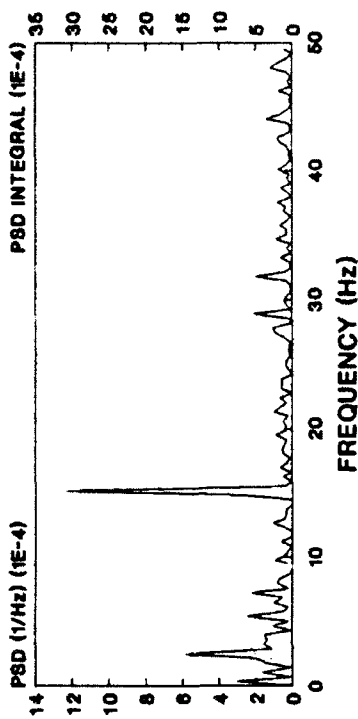


# FORCE COEFF - NORMAL 60 FT/SEC NOMINAL



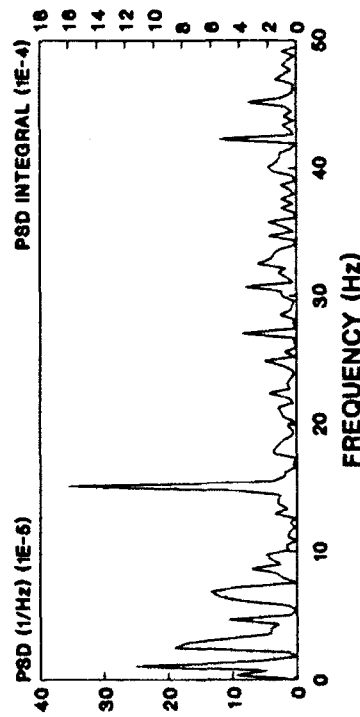
CUBE (R) - HT 8.9 - THETA 30 - AZ 000

# FORCE COEFF - NORMAL 90 FT/SEC NOMINAL



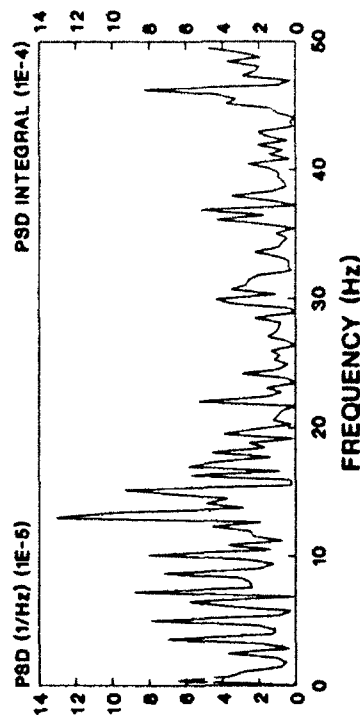
CUBE (R) - HT 8.9 - THETA 30 - AZ 000

# FORCE COEFF - NORMAL 120 FT/SEC NOMINAL



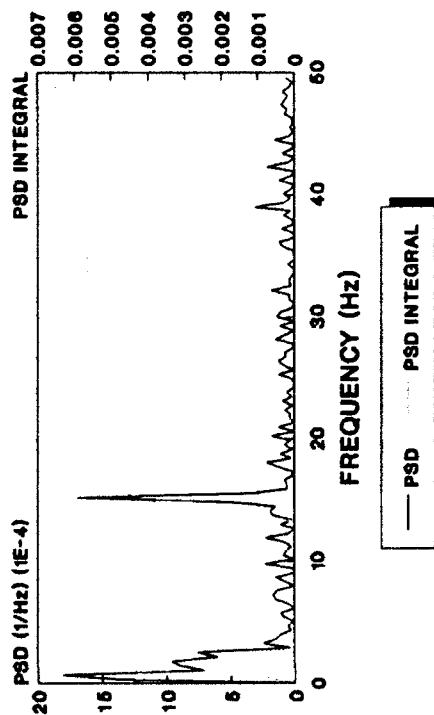
CUBE (R) - HT 8.9 - THETA 30 - AZ 000

# FORCE COEFF - NORMAL 180 FT/SEC NOMINAL



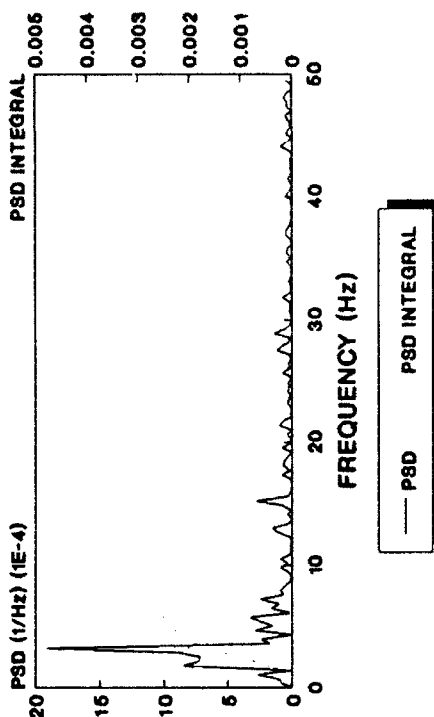
CUBE (R) - HT 8.9 - THETA 30 - AZ 000

# MOMENT COEFF - NORMAL 60 FT/SEC NOMINAL



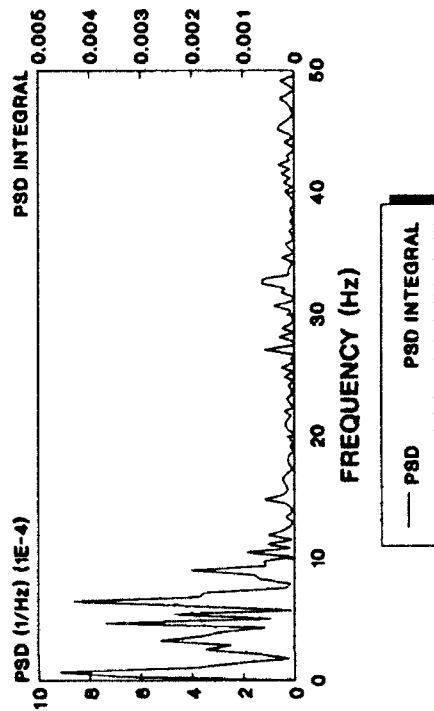
CUBE (R) - HT 6.9 - THETA 30 - AZ 000

# MOMENT COEFF - NORMAL 90 FT/SEC NOMINAL



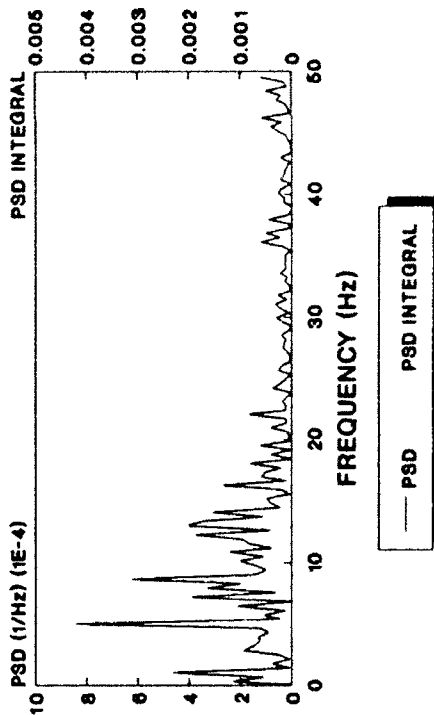
CUBE (R) - HT 6.9 - THETA 30 - AZ 000

# MOMENT COEFF - NORMAL 120 FT/SEC NOMINAL



CUBE (R) - HT 6.9 - THETA 30 - AZ 000

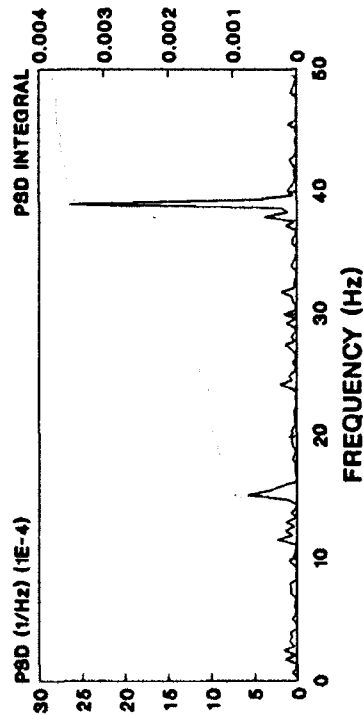
# MOMENT COEFF - NORMAL 180 FT/SEC NOMINAL



CUBE (R) - HT 6.9 - THETA 30 - AZ 000

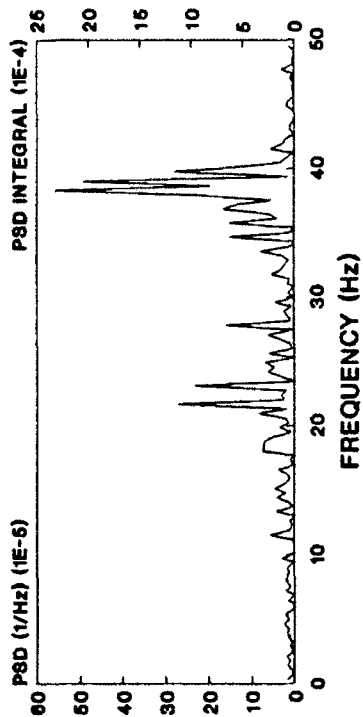


# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



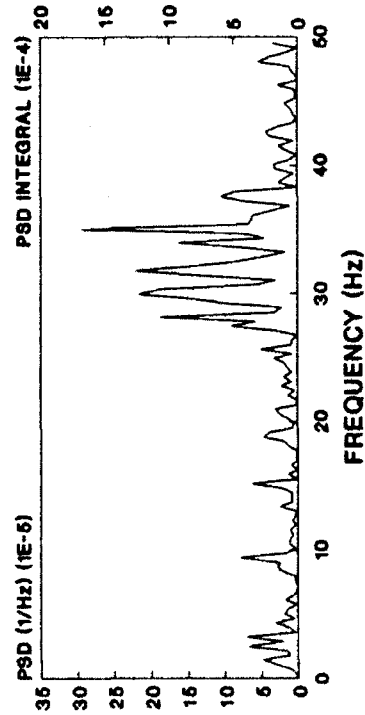
CUBE (R) - HT 8.9 - THETA 30 - AZ 000

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



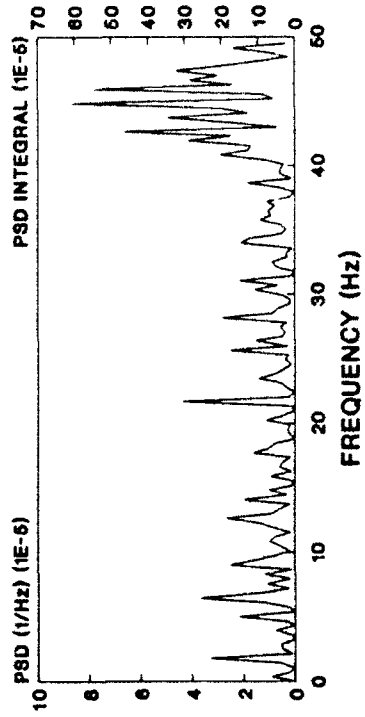
CUBE (R) - HT 8.9 - THETA 30 - AZ 000

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



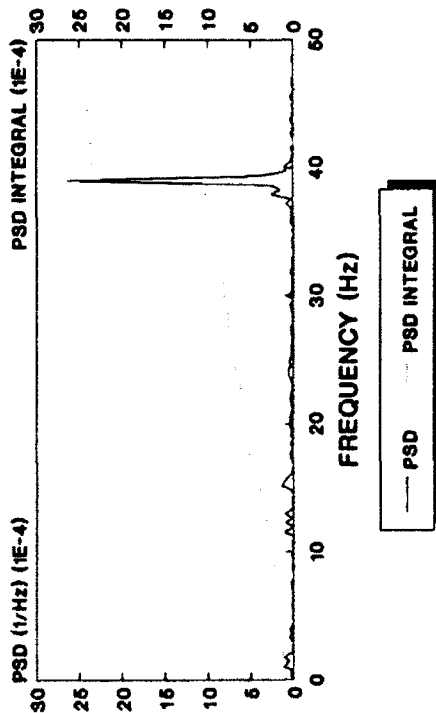
CUBE (R) - HT 8.9 - THETA 30 - AZ 000

# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



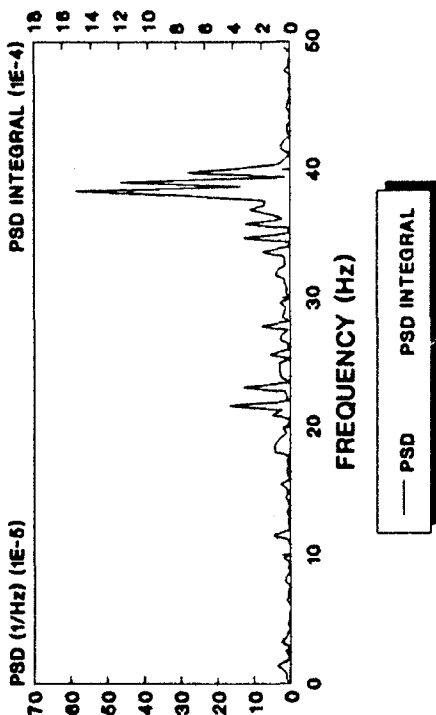
CUBE (R) - HT 8.9 - THETA 30 - AZ 000

# MOMENT COEFF - LATERAL 60 FT/SEC NOMINAL



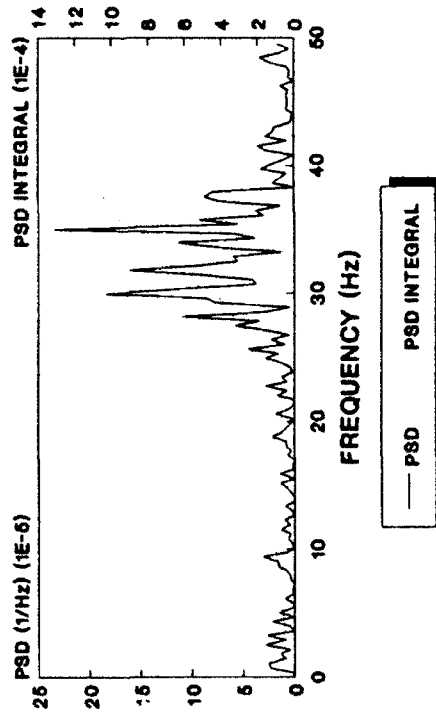
CUBE (R) - HT 8.9 - THETA 30 - AZ 000

# MOMENT COEFF - LATERAL 90 FT/SEC NOMINAL



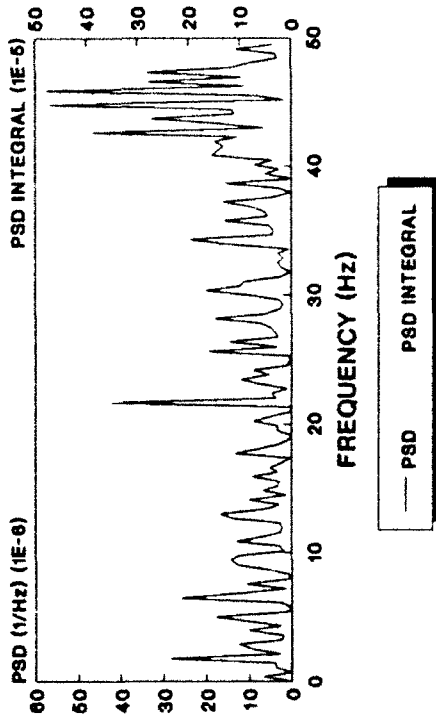
CUBE (R) - HT 8.9 - THETA 30 - AZ 000

# MOMENT COEFF - LATERAL 120 FT/SEC NOMINAL



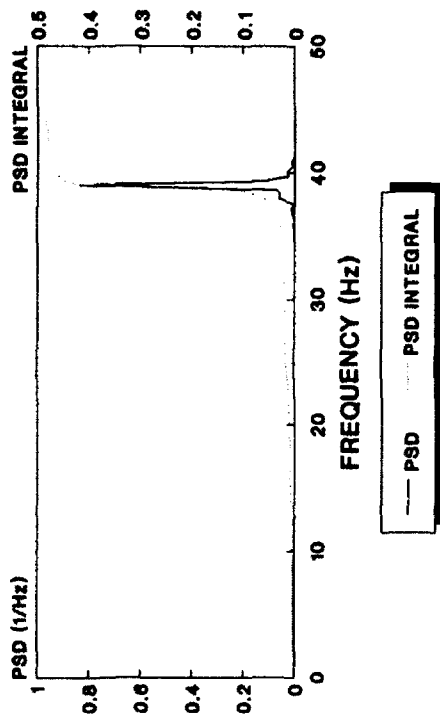
CUBE (R) - HT 8.9 - THETA 30 - AZ 000

# MOMENT COEFF - LATERAL 180 FT/SEC NOMINAL



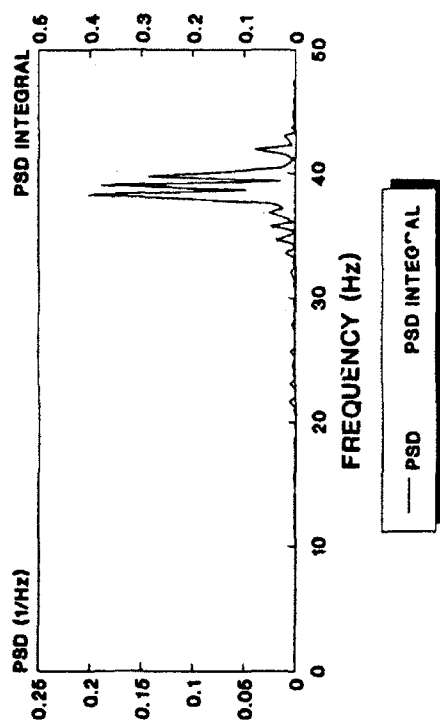
CUBE (R) - HT 8.9 - THETA 30 - AZ 000

# MOMENT COEFF - ROLL 60 FT/SEC NOMINAL



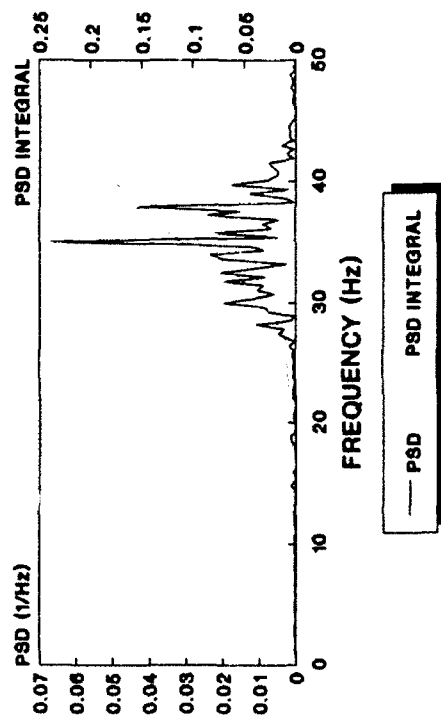
CUBE (R) - HT 8.9 - THETA 30 - AZ 000

# MOMENT COEFF - ROLL 90 FT/SEC NOMINAL



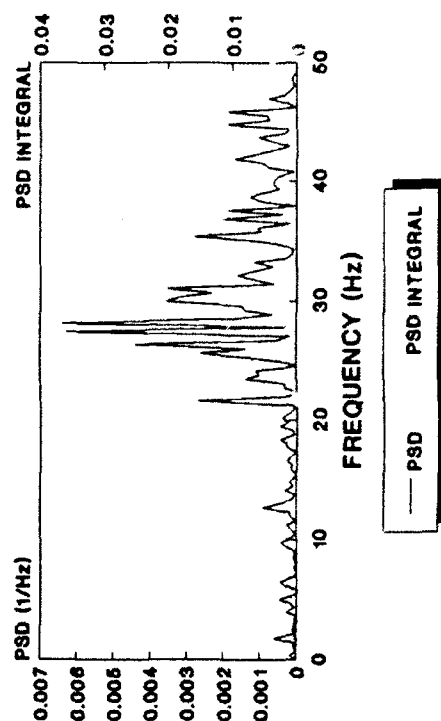
CUBE (R) - HT 8.9 - THETA 30 - AZ 000

# MOMENT COEFF - ROLL 120 FT/SEC NOMINAL



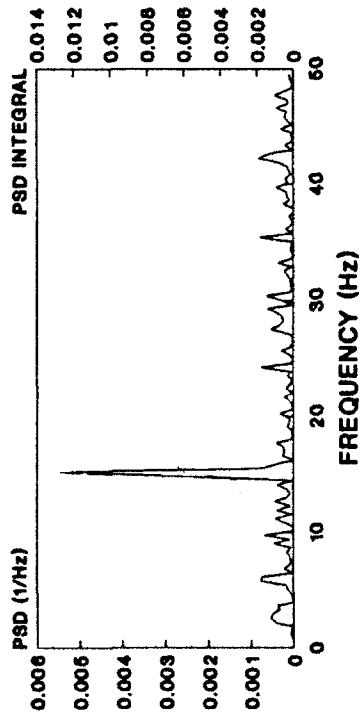
CUBE (R) - HT 8.9 - THETA 30 - AZ 000

# MOMENT COEFF - ROLL 180 FT/SEC NOMINAL



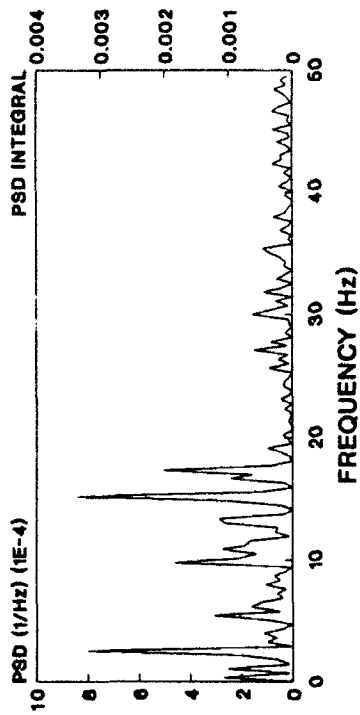
CUBE (R) - HT 8.9 - THETA 30 - AZ 000

# FORCE COEFF - NORMAL 60 FT/SEC NOMINAL



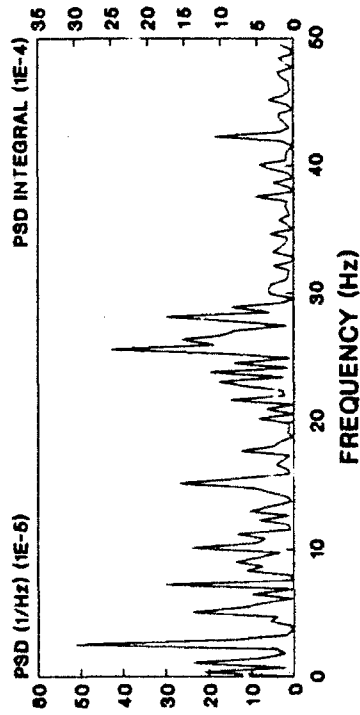
CUBE (R) - HT 8.9 - THETA 30 - AZ 030

# FORCE COEFF - NORMAL 90 FT/SEC NOMINAL



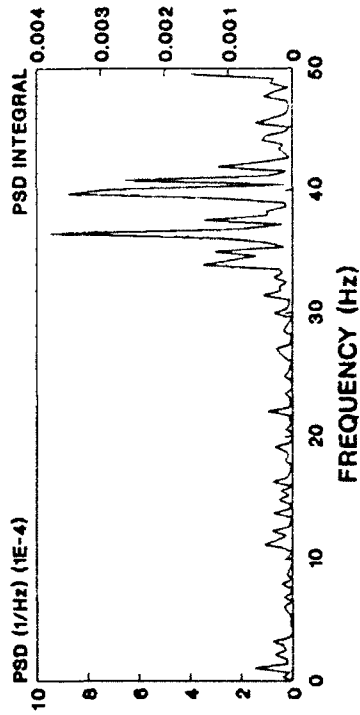
CUBE (R) - HT 8.9 - THETA 30 - AZ 030

# FORCE COEFF - NORMAL 120 FT/SEC NOMINAL



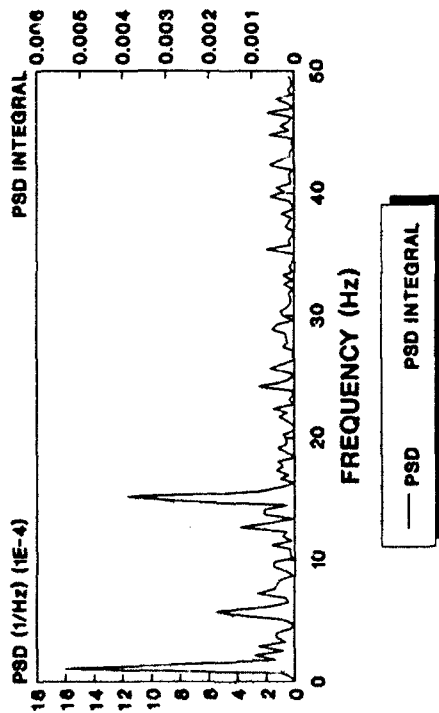
CUBE (R) - HT 8.9 - THETA 30 - AZ 030

# FORCE COEFF - NORMAL 180 FT/SEC NOMINAL



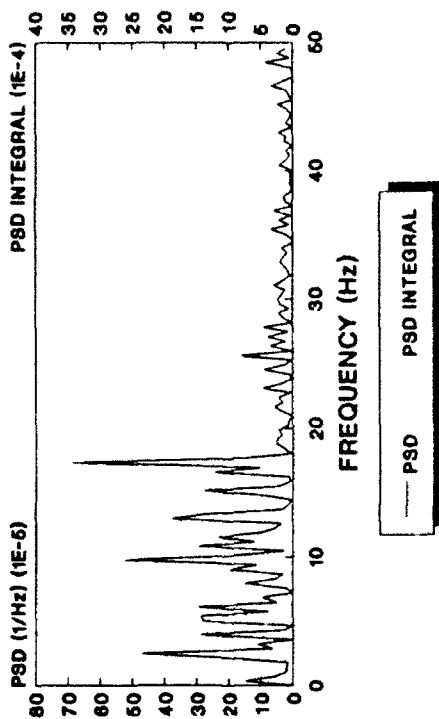
CUBE (R) - HT 8.9 - THETA 30 - AZ 030

# MOMENT COEFF - NORMAL 60 FT/SEC NOMINAL



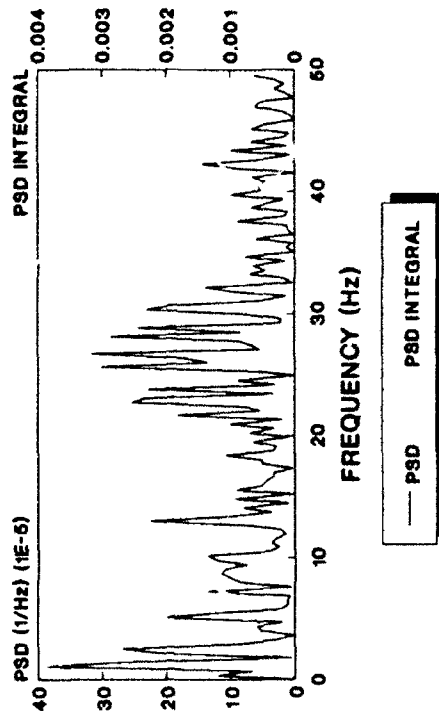
CUBE (R) - HT 8.8 - THETA 30 - AZ 030

# MOMENT COEFF - NORMAL 90 FT/SEC NOMINAL



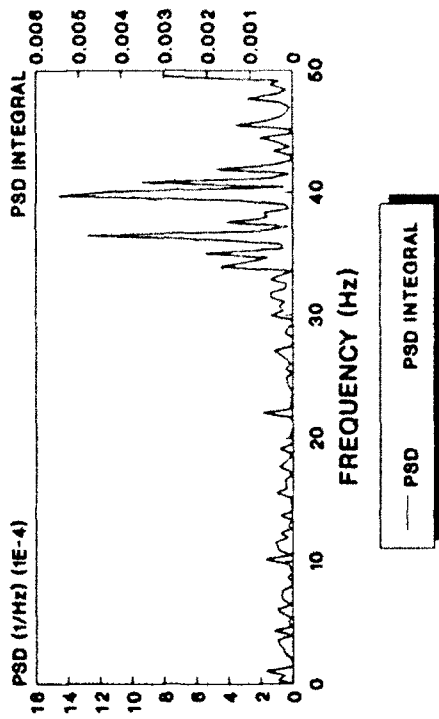
CUBE (R) - HT 8.8 - THETA 30 - AZ 030

# MOMENT COEFF - NORMAL 120 FT/SEC NOMINAL



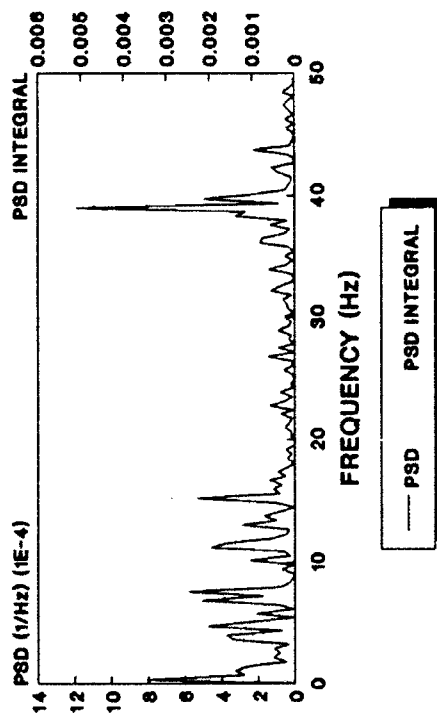
CUBE (R) - HT 8.8 - THETA 30 - AZ 030

# MOMENT COEFF - NORMAL 180 FT/SEC NOMINAL



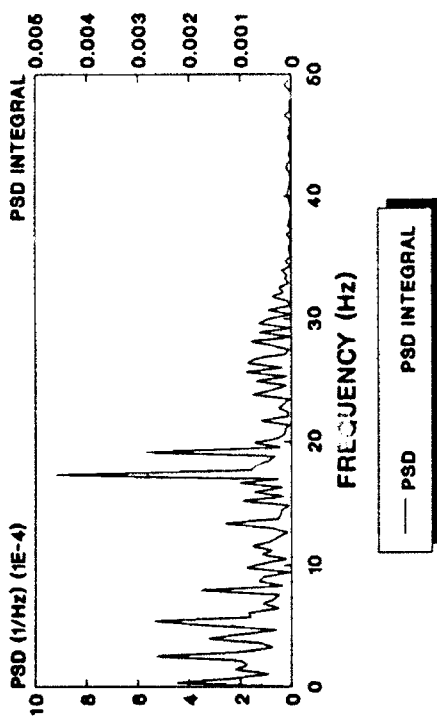
CUBE (R) - HT 8.8 - THETA 30 - AZ 030

# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



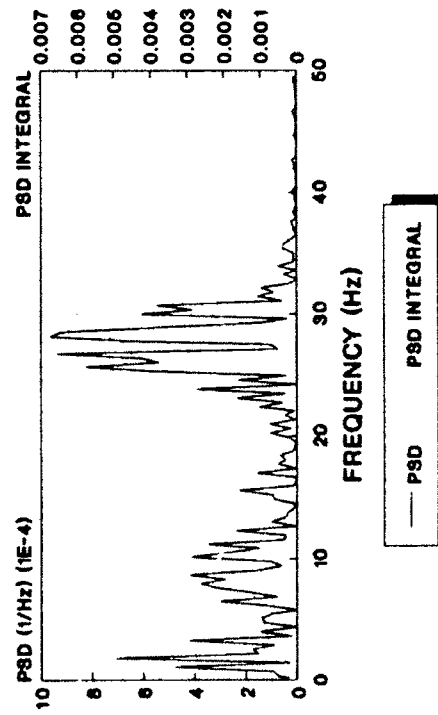
CUBE (R) - MT 8.8 - THETA 30 - AZ 030

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



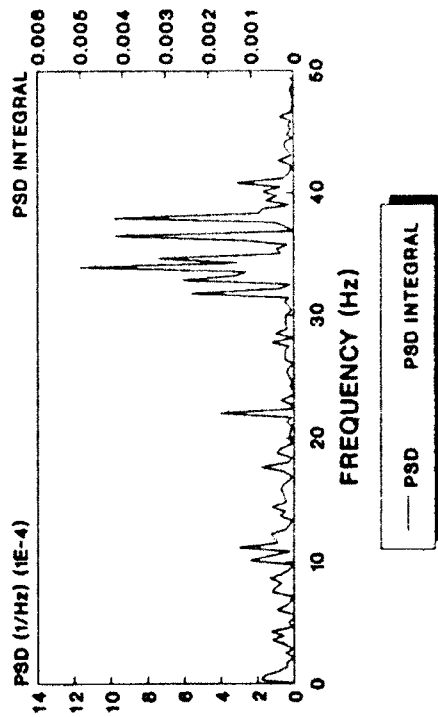
CUBE (R) - MT 8.8 - THETA 30 - AZ 030

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



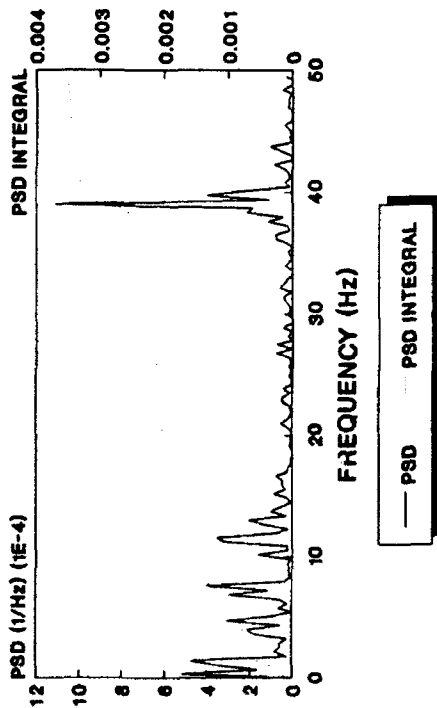
CUBE (R) - MT 8.8 - THETA 30 - AZ 030

# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



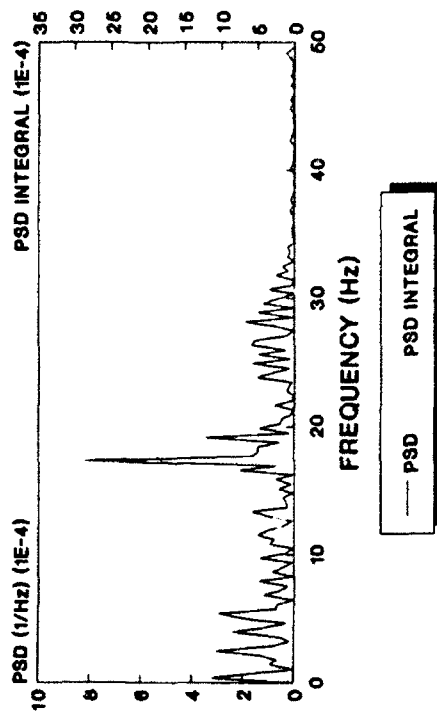
CUBE (R) - MT 8.8 - THETA 30 - AZ 030

# MOMENT COEFF - LATERAL 60 FT/SEC NOMINAL



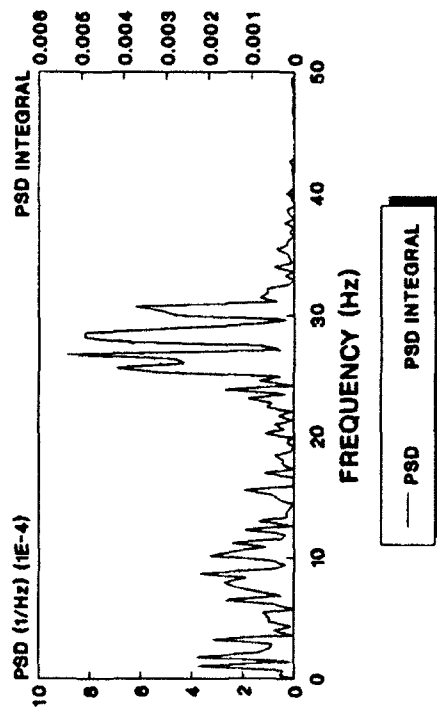
CUBE (R) - HT 8.9 - THETA 30 - AZ 030

# MOMENT COEFF - LATERAL 90 FT/SEC NOMINAL



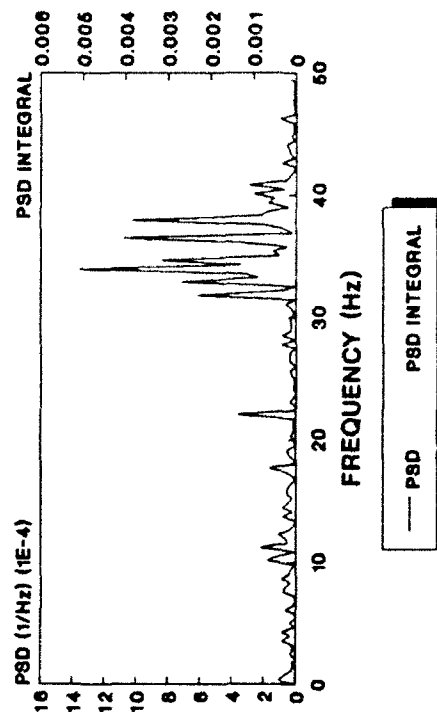
CUBE (R) - HT 8.9 - THETA 30 - AZ 030

# MOMENT COEFF - LATERAL 120 FT/SEC NOMINAL



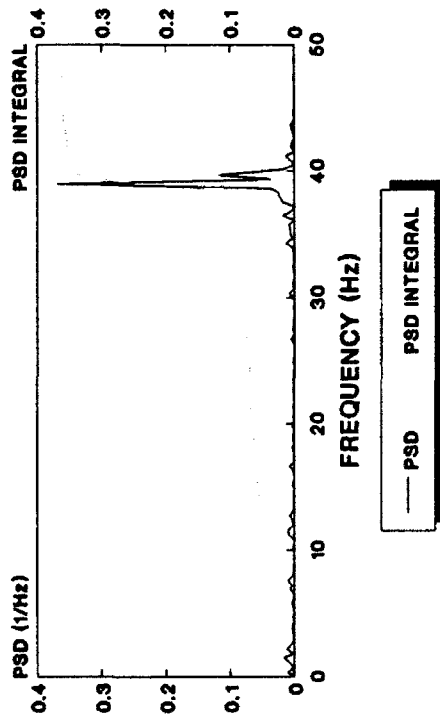
CUBE (R) - HT 8.9 - THETA 30 - AZ 030

# MOMENT COEFF - LATERAL 180 FT/SEC NOMINAL



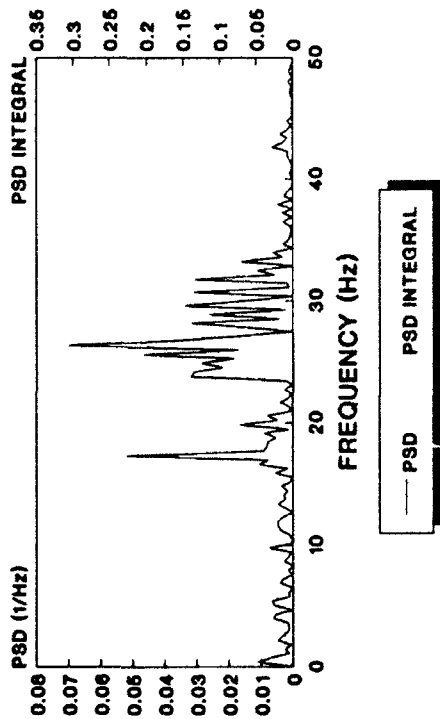
CUBE (R) - HT 8.9 - THETA 30 - AZ 030

# MOMENT COEFF - ROLL 60 FT/SEC NOMINAL



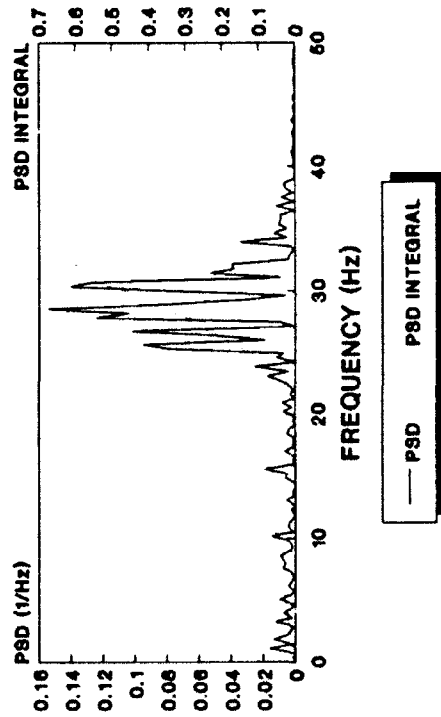
CUBE (R) - HT 8.9 - THETA 30 - AZ 030

# MOMENT COEFF - ROLL 90 FT/SEC NOMINAL



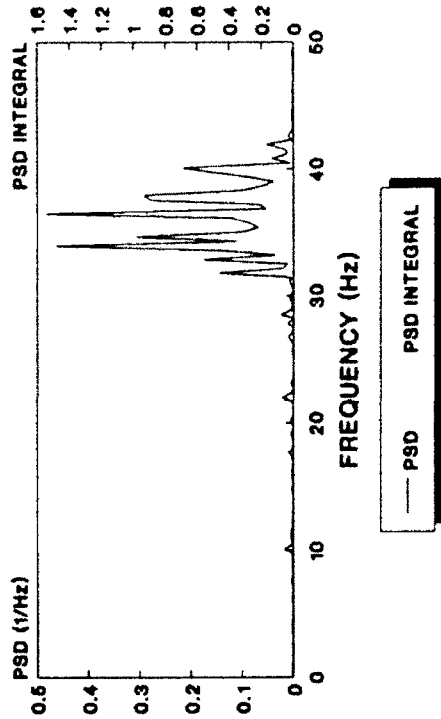
CUBE (R) - HT 8.9 - THETA 30 - AZ 030

# MOMENT COEFF - ROLL 120 FT/SEC NOMINAL



CUBE (R) - HT 8.9 - THETA 30 - AZ 030

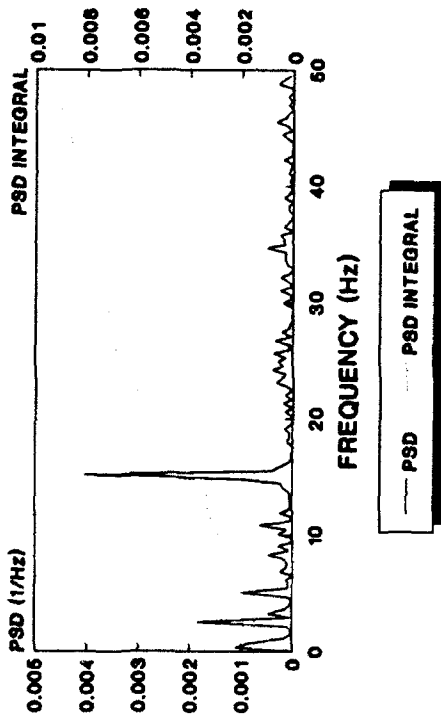
# MOMENT COEFF - ROLL 180 FT/SEC NOMINAL



CUBE (R) - HT 8.9 - THETA 30 - AZ 030

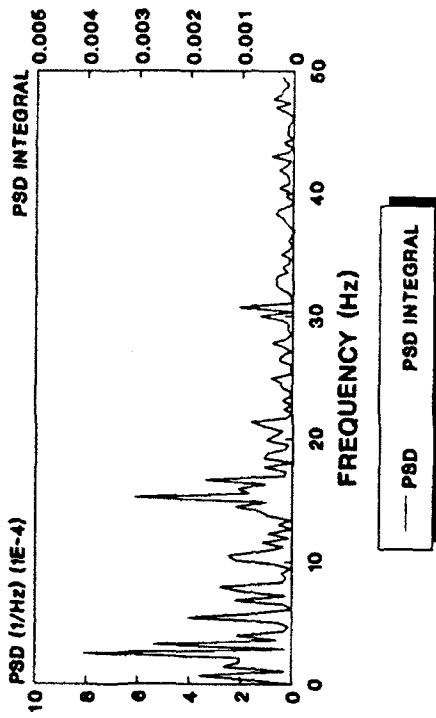


# FORCE COEFF - NORMAL 60 FT/SEC NOMINAL



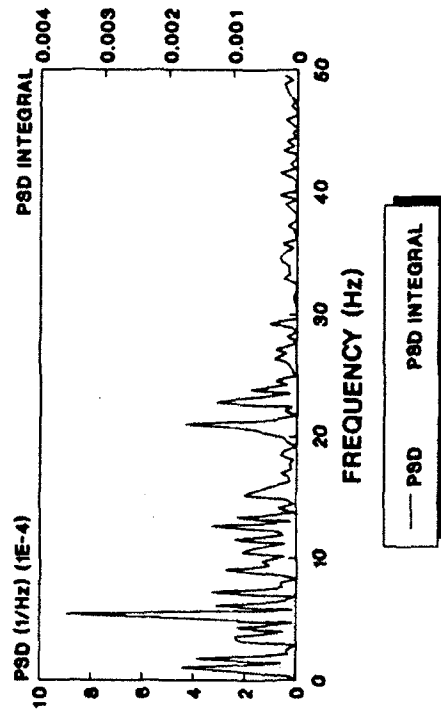
CUBE (R) - HT 8.8 - THETA 30 - AZ 046

# FORCE COEFF - NORMAL 90 FT/SEC NOMINAL



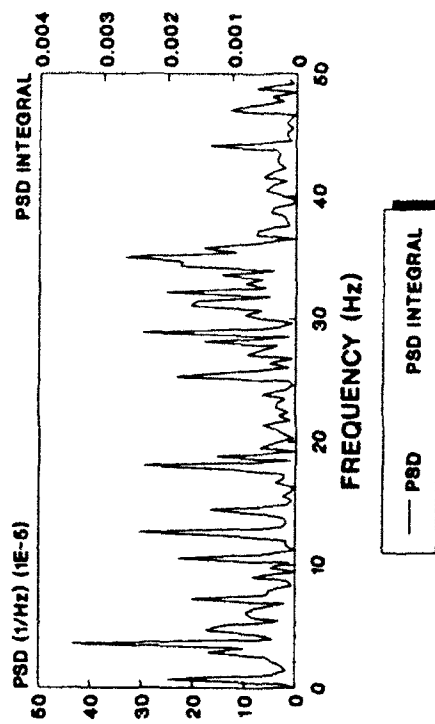
CUBE (R) - HT 8.8 - THETA 30 - AZ 046

# FORCE COEFF - NORMAL 120 FT/SEC NOMINAL



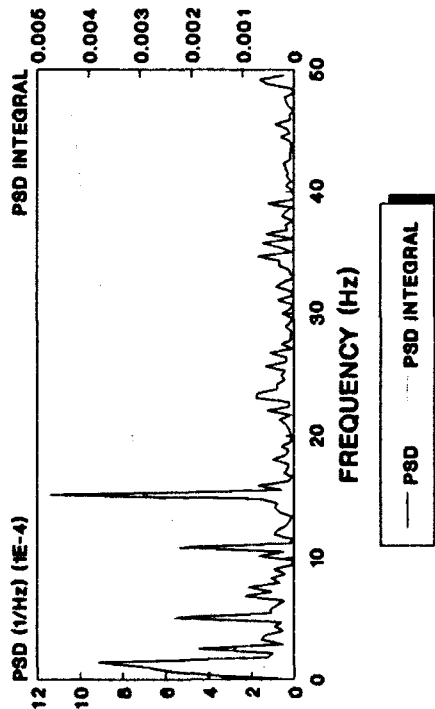
CUBE (R) - HT 8.8 - THETA 30 - AZ 046

# FORCE COEFF - NORMAL 180 FT/SEC NOMINAL



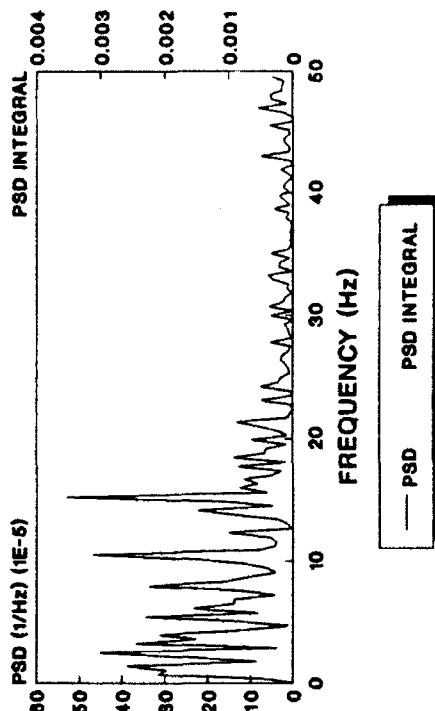
CUBE (R) - HT 8.8 - THETA 30 - AZ 046

# MOMENT COEFF - NORMAL 60 FT/SEC NOMINAL



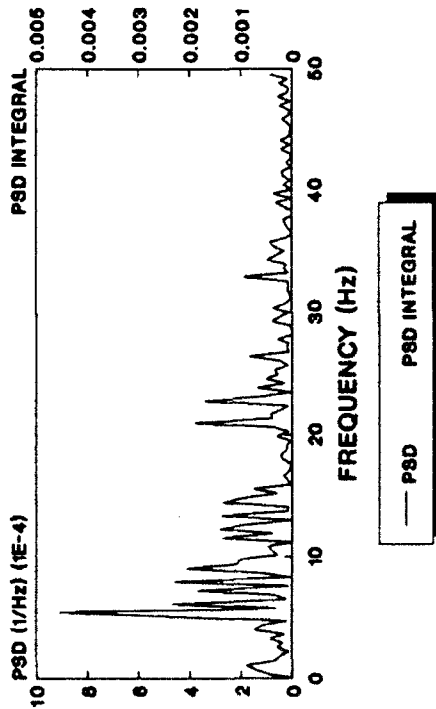
CUBE (R) - HT 8.9 - THETA 30 - AZ 048

# MOMENT COEFF - NORMAL 90 FT/SEC NOMINAL



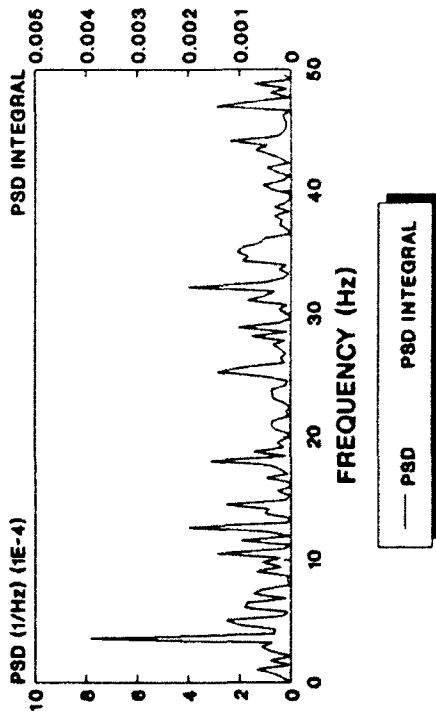
CUBE (R) - HT 8.9 - THETA 30 - AZ 048

# MOMENT COEFF - NORMAL 120 FT/SEC NOMINAL



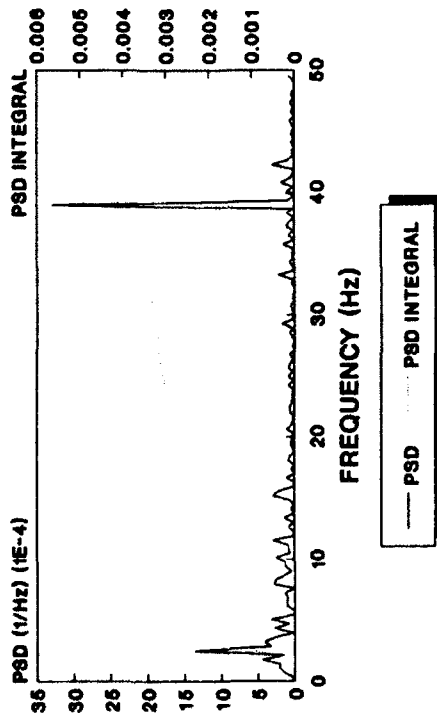
CUBE (R) - HT 8.9 - THETA 30 - AZ 048

# MOMENT COEFF - NORMAL 180 FT/SEC NOMINAL



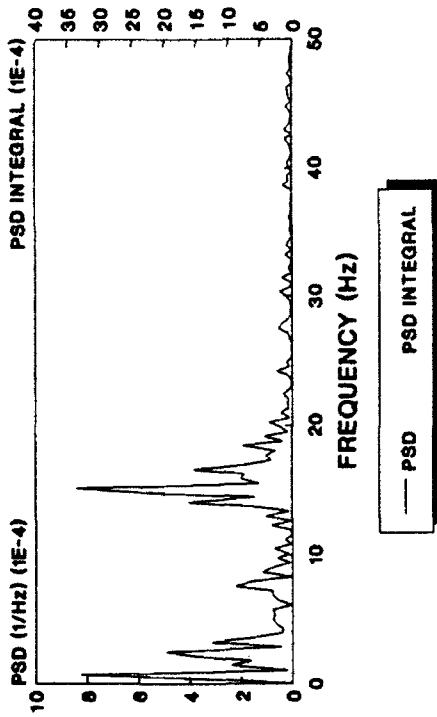
CUBE (R) - HT 8.9 - THETA 30 - AZ 048

# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



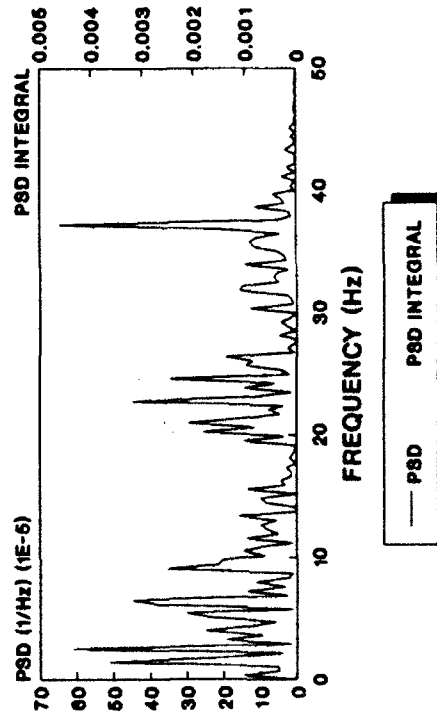
CUBE (R) - HT 8.9 - THETA 30 - AZ 045

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



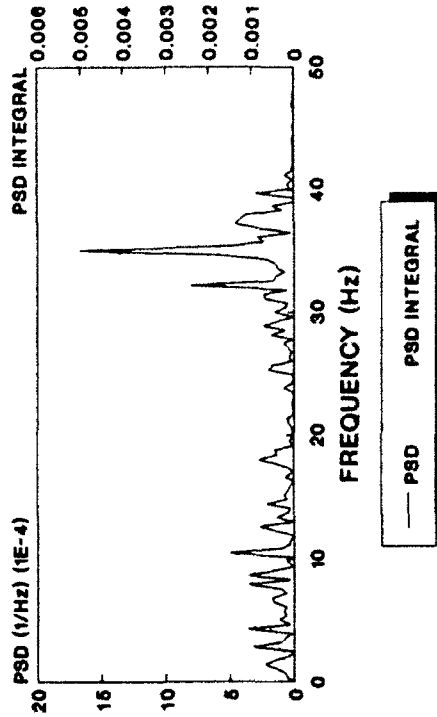
CUBE (R) - HT 8.9 - THETA 30 - AZ 046

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



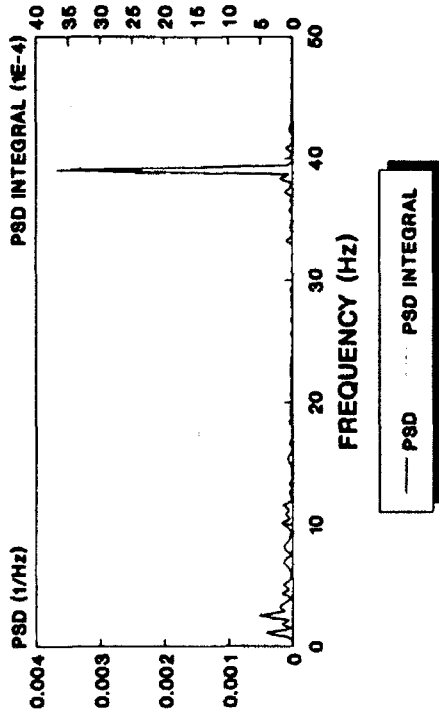
CUBE (R) - HT 8.9 - THETA 30 - AZ 045

# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



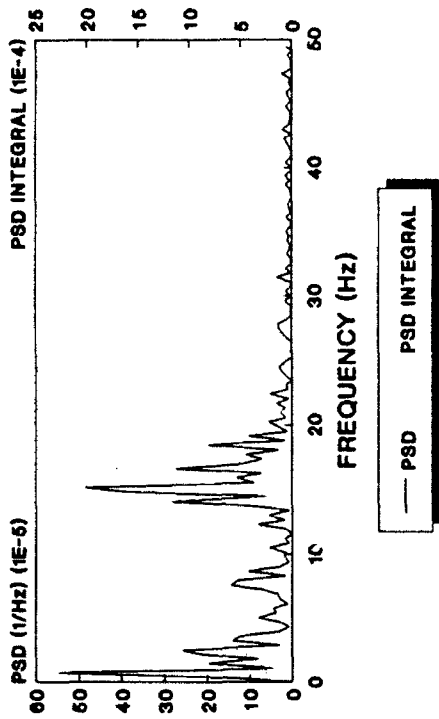
CUBE (R) - HT 8.9 - THETA 30 - AZ 046

# MOMENT COEFF - LATERAL 60 FT/SEC NOMINAL



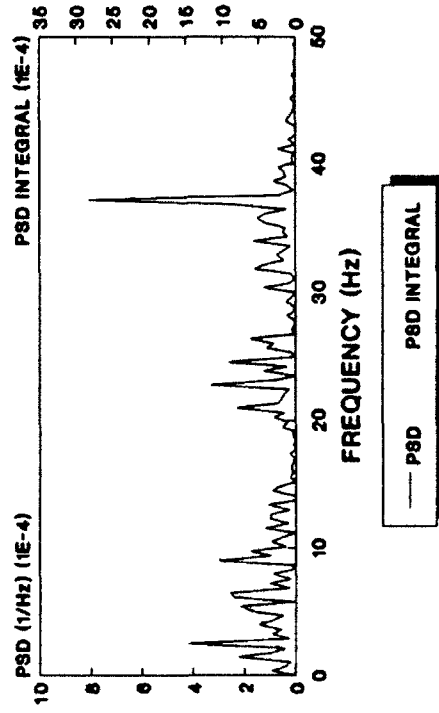
CUBE (R) - HT 8.9 - THETA 30 - AZ 045

# MOMENT COEFF - LATERAL 90 FT/SEC NOMINAL



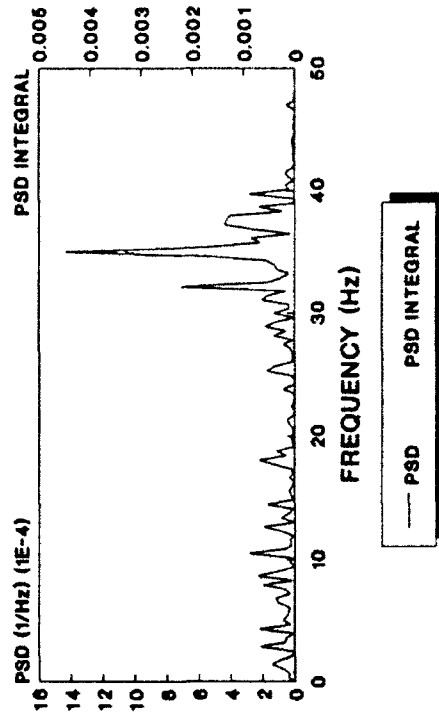
CUBE (R) - HT 8.9 - THETA 30 - AZ 045

# MOMENT COEFF - LATERAL 120 FT/SEC NOMINAL



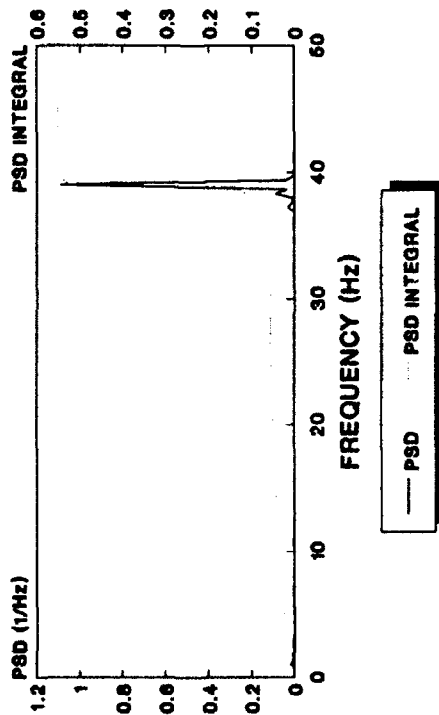
CUBE (R) - HT 8.9 - THETA 30 - AZ 045

# MOMENT COEFF - LATERAL 180 FT/SEC NOMINAL



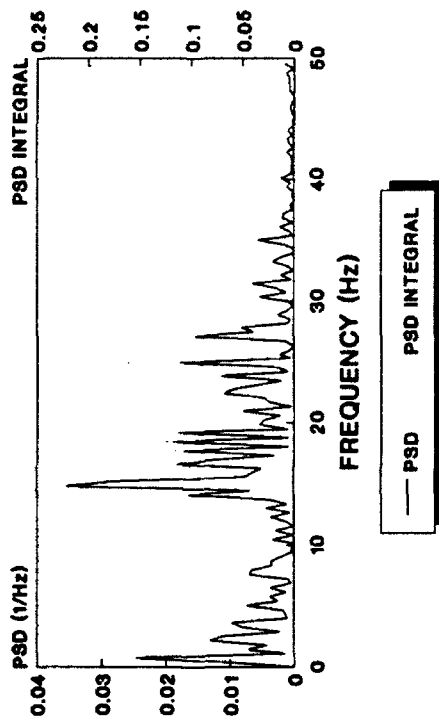
CUBE (R) - HT 8.9 - THETA 30 - AZ 045

# MOMENT COEFF - ROLL 60 FT/SEC NOMINAL



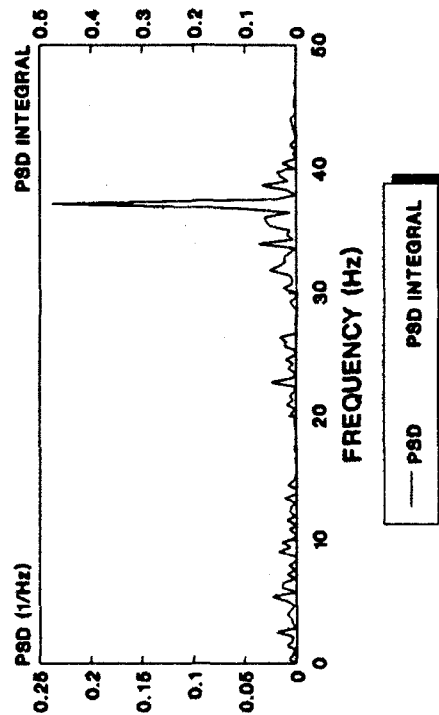
CUBE (R) - HT 8.9 - THETA 30 - AZ 045

# MOMENT COEFF - ROLL 90 FT/SEC NOMINAL



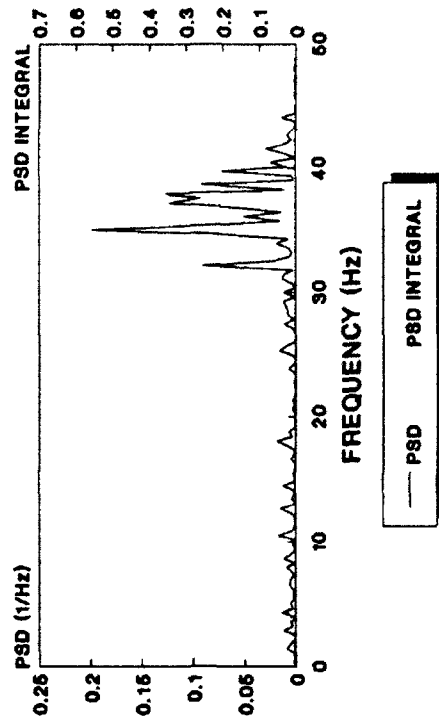
CUBE (R) - HT 8.9 - THETA 30 - AZ 045

# MOMENT COEFF - ROLL 120 FT/SEC NOMINAL



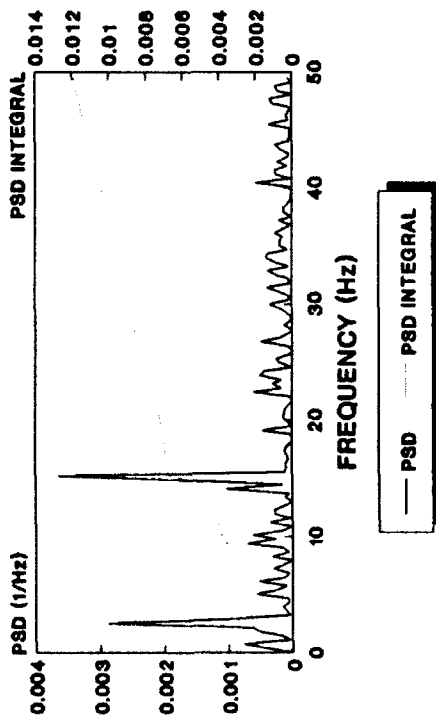
CUBE (R) - HT 8.9 - THETA 30 - AZ 045

# MOMENT COEFF - ROLL 180 FT/SEC NOMINAL



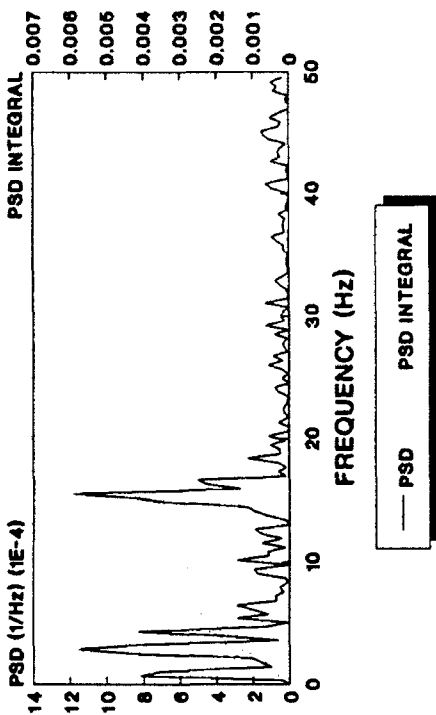
CUBE (R) - HT 8.9 - THETA 30 - AZ 045

# FORCE COEFF - NORMAL 60 FT/SEC NOMINAL



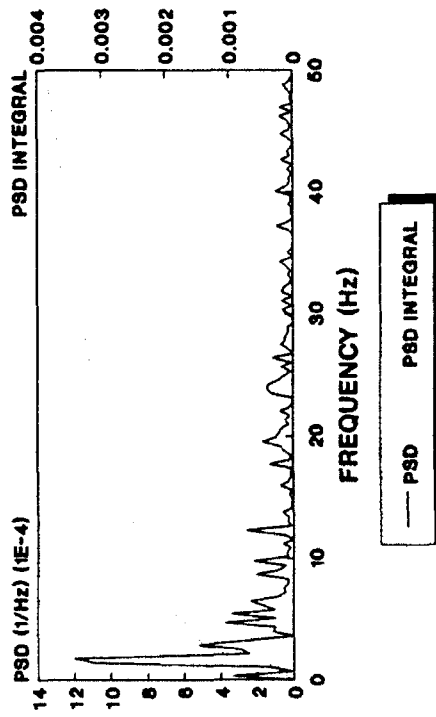
CUBE (R) - MT 8.9 - THETA 30 - AZ 060

# FORCE COEFF - NORMAL 90 FT/SEC NOMINAL



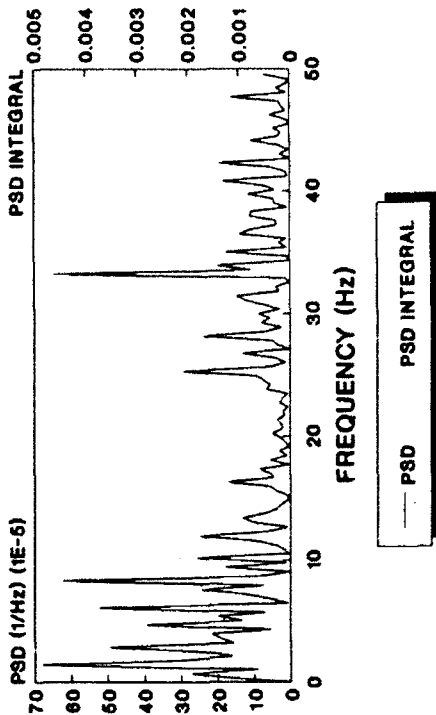
CUBE (R) - MT 8.9 - THETA 30 - AZ 060

# FORCE COEFF - NORMAL 120 FT/SEC NOMINAL



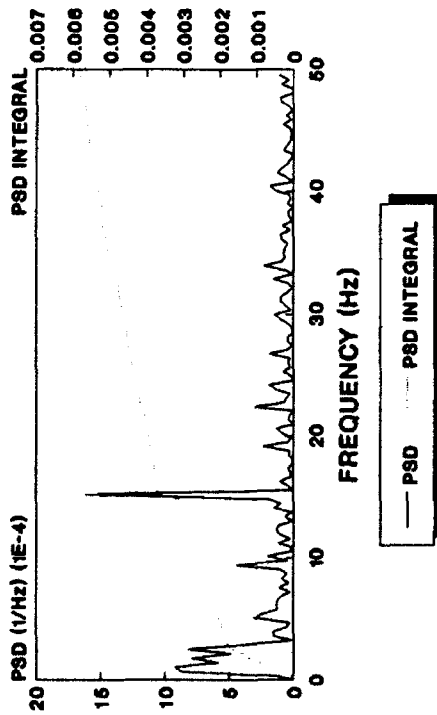
CUBE (R) - MT 8.9 - THETA 30 - AZ 060

# FORCE COEFF - NORMAL 180 FT/SEC NOMINAL



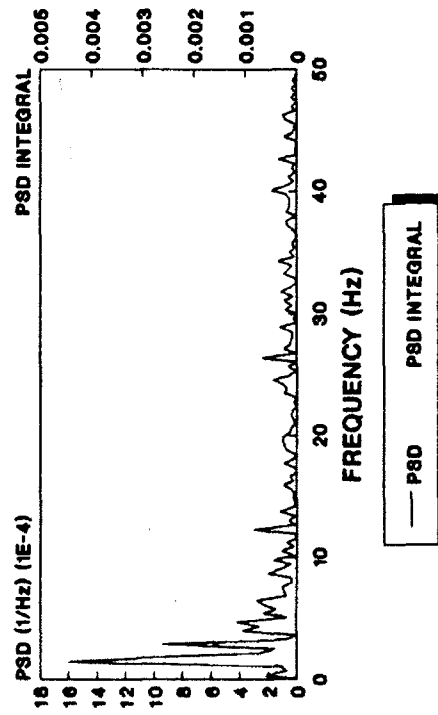
CUBE (R) - MT 8.9 - THETA 30 - AZ 060

# MOMENT COEFF - NORMAL 60 FT/SEC NOMINAL



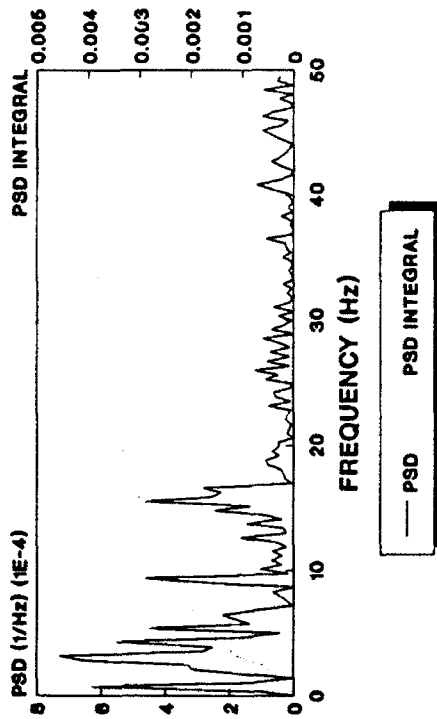
CUBE (R) - HT 8.9 - THETA 30 - AZ 060

# MOMENT COEFF - NORMAL 120 FT/SEC NOMINAL



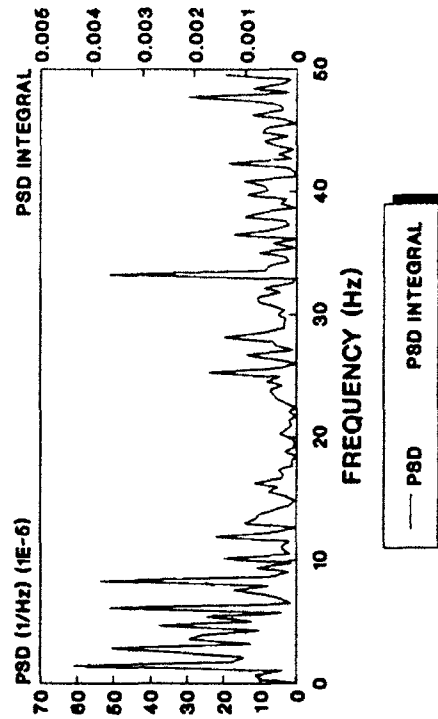
CUBE (R) - HT 8.9 - THETA 30 - AZ 060

# MOMENT COEFF - NORMAL 90 FT/SEC NOMINAL



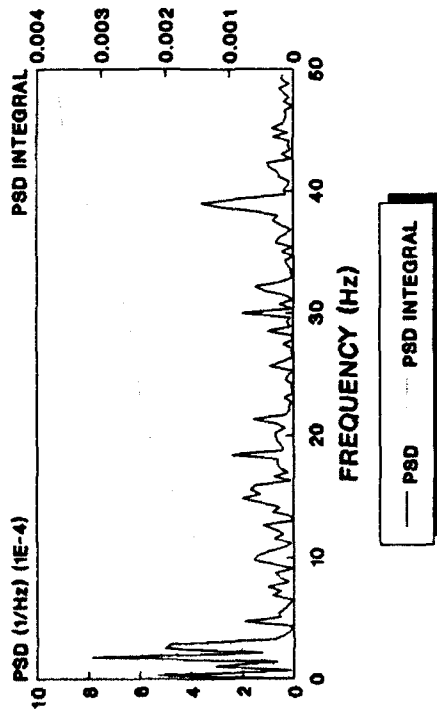
CUBE (R) - HT 8.9 - THETA 30 - AZ 060

# MOMENT COEFF - NORMAL 180 FT/SEC NOMINAL



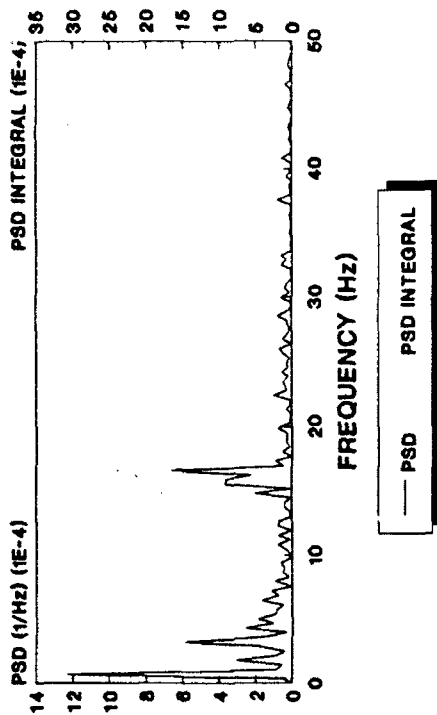
CUBE (R) - HT 8.9 - THETA 30 - AZ 060

# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



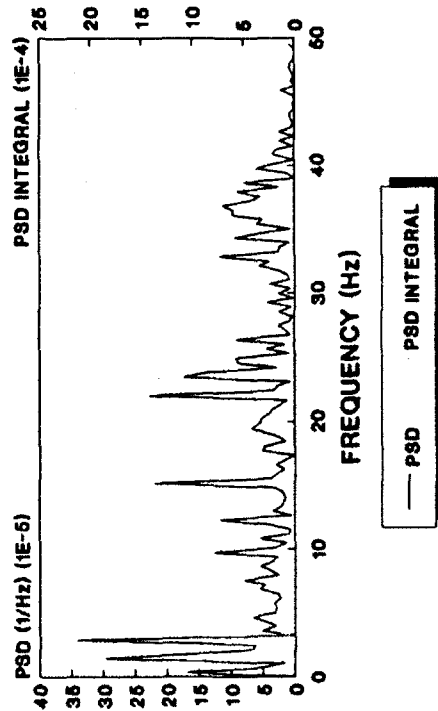
CUBE (R) - HT 8.9 - THETA 30 - AZ 060

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



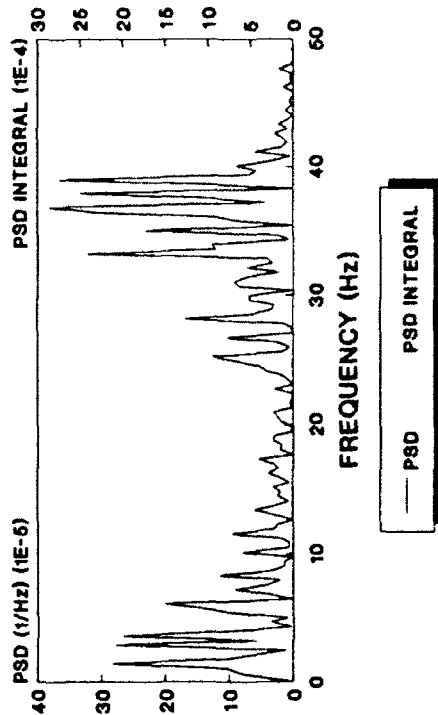
CUBE (R) - HT 8.9 - THETA 30 - AZ 060

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



CUBE (R) - HT 8.9 - THETA 30 - AZ 060

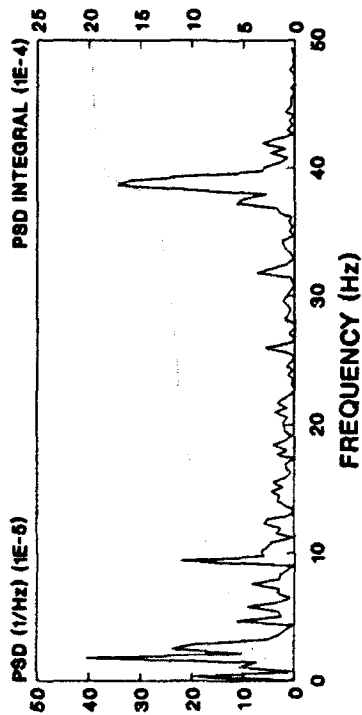
# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



CUBE (R) - HT 8.9 - THETA 30 - AZ 060

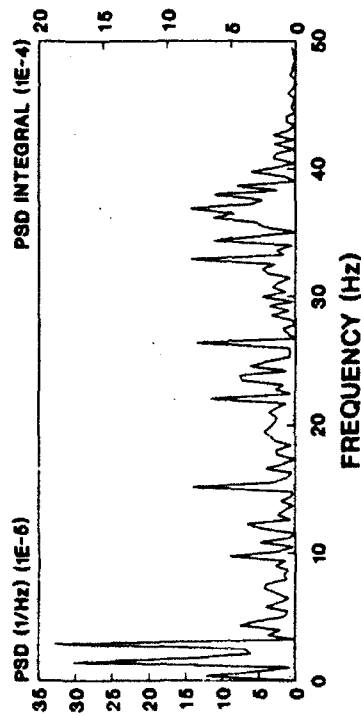


# MOMENT COEFF - LATERAL 60 FT/SEC NOMINAL



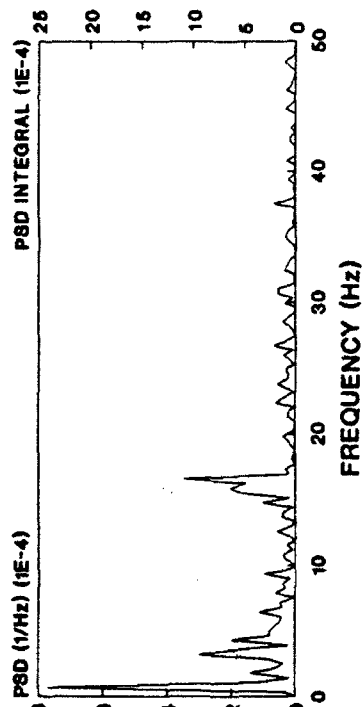
CUBE (R) - HT 8.9 - THETA 30 - AZ 060

# MOMENT COEFF - LATERAL 120 FT/SEC NOMINAL



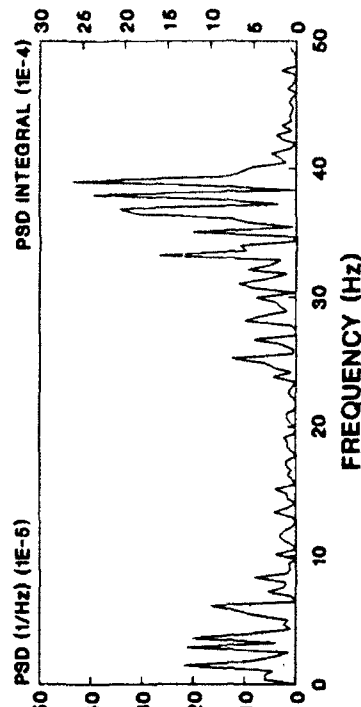
CUBE (R) - HT 8.9 - THETA 30 - AZ 060

# MOMENT COEFF - LATERAL 90 FT/SEC NOMINAL



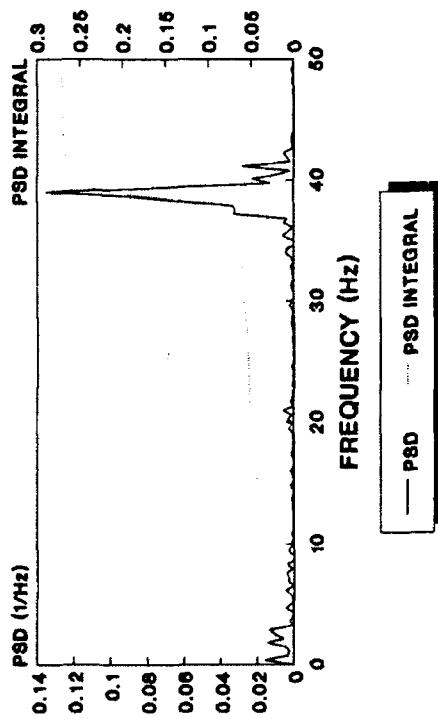
CUBE (R) - HT 8.9 - THETA 30 - AZ 060

# MOMENT COEFF - LATERAL 180 FT/SEC NOMINAL



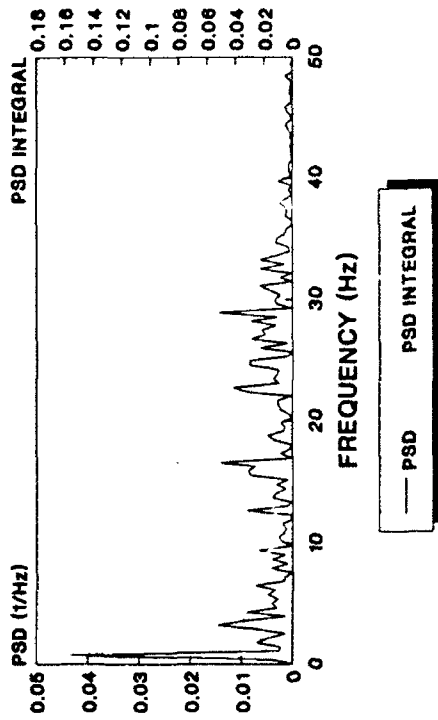
CUBE (R) - HT 8.9 - THETA 30 - AZ 060

# MOMENT COEFF - ROLL 60 FT/SEC NOMINAL



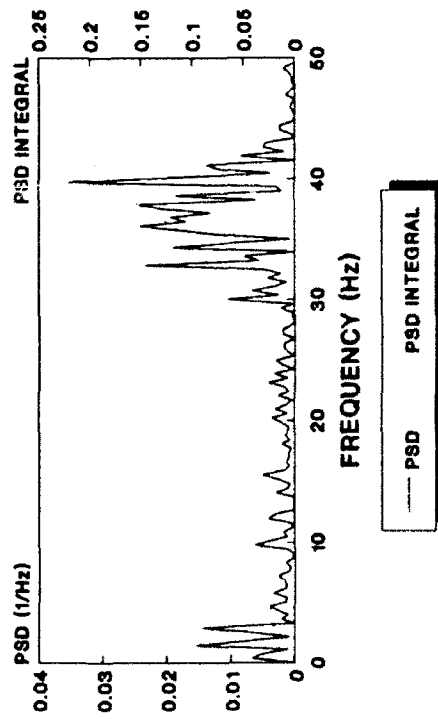
CUBE (R) - HT 8.9 - THETA 30 - AZ 060

# MOMENT COEFF - ROLL 90 FT/SEC NOMINAL



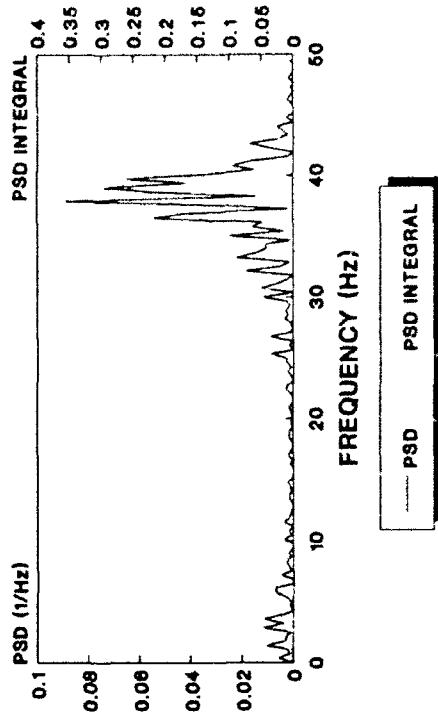
CUBE (R) - HT 8.9 - THETA 30 - AZ 060

# MOMENT COEFF - ROLL 120 FT/SEC NOMINAL



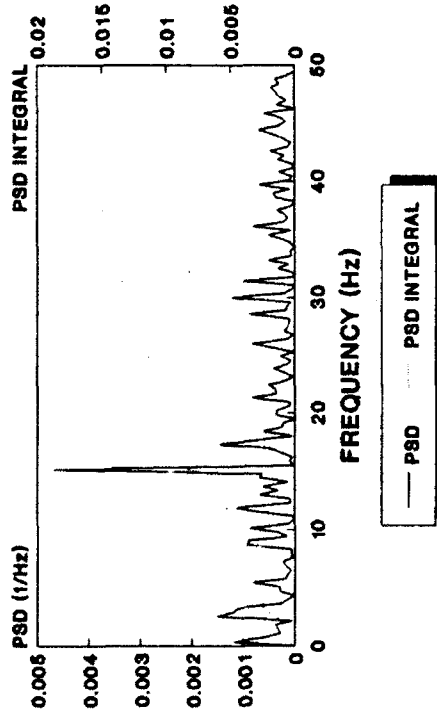
CUBE (R) - HT 8.9 - THETA 30 - AZ 060

# MOMENT COEFF - ROLL 180 FT/SEC NOMINAL



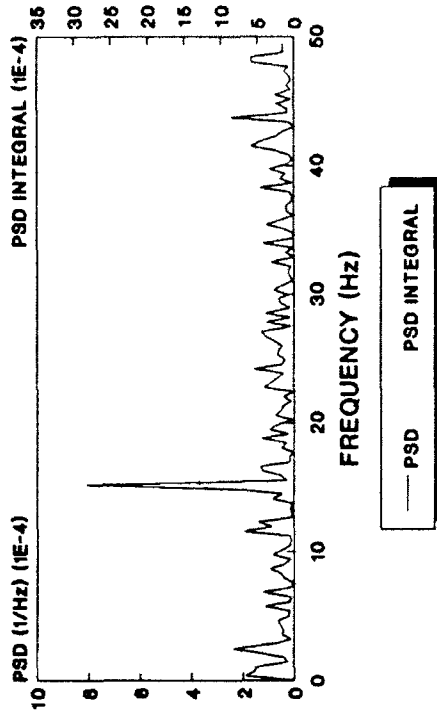
CUBE (R) - HT 8.9 - THETA 30 - AZ 060

# FORCE COEFF - NORMAL 60 FT/SEC NOMINAL



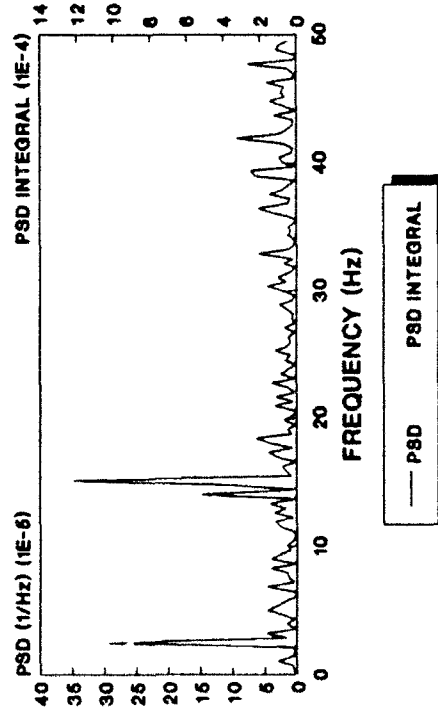
CUBE (R) - HT 8.9 - THETA 30 - AZ 090

# FORCE COEFF - NORMAL 90 FT/SEC NOMINAL



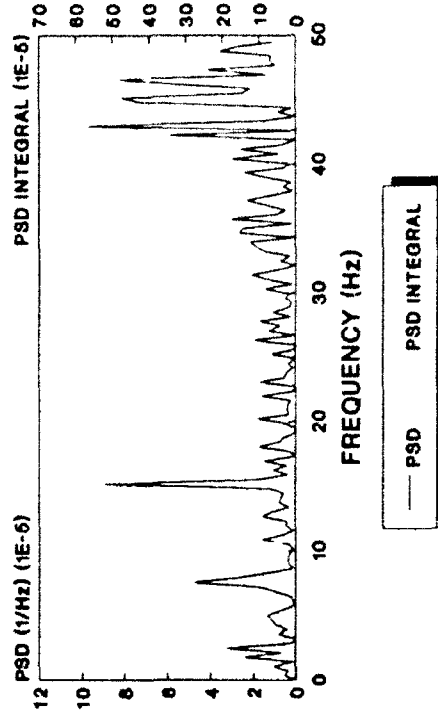
CUBE (R) - HT 8.9 - THETA 30 - AZ 090

# FORCE COEFF - NORMAL 120 FT/SEC NOMINAL



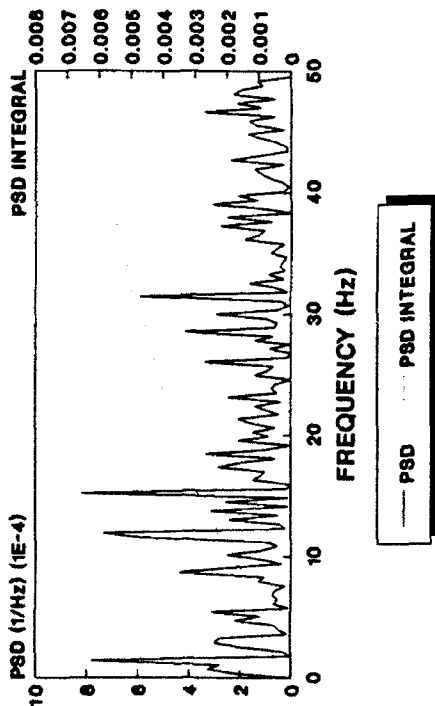
CUBE (R) - HT 8.9 - THETA 30 - AZ 090

# FORCE COEFF - NORMAL 180 FT/SEC NOMINAL



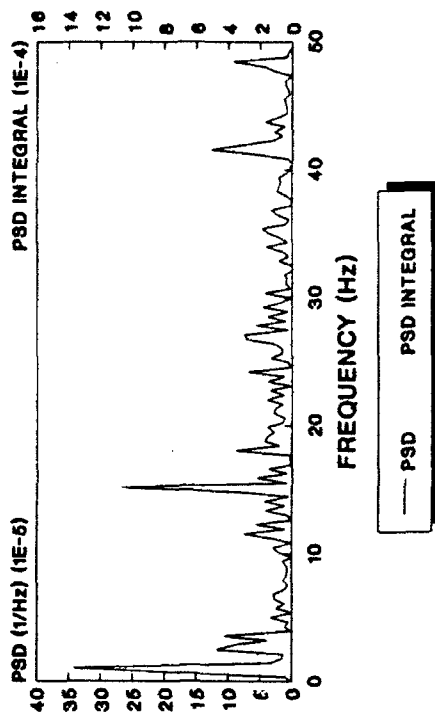
CUBE (R) - HT 8.9 - THETA 30 - AZ 090

# MOMENT COEFF - NORMAL 60 FT/SEC NOMINAL



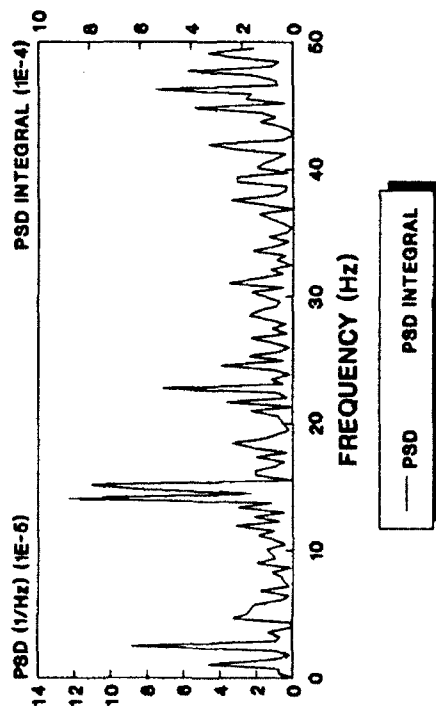
CUBE (R) - HT 8.8 - THETA 30 - AZ 090

# MOMENT COEFF - NORMAL 90 FT/SEC NOMINAL



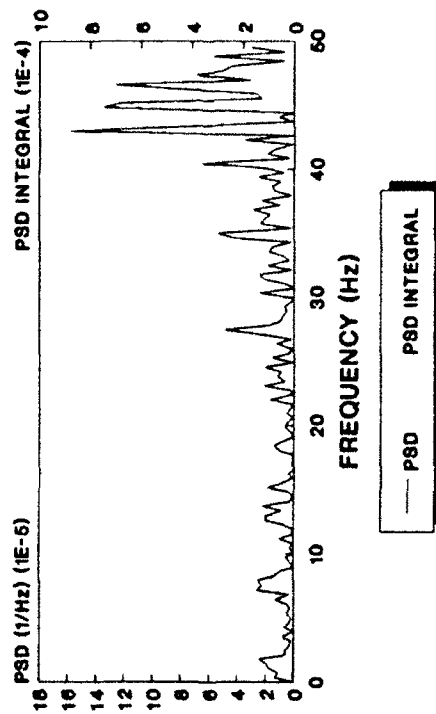
CUBE (R) - HT 8.8 - THETA 30 - AZ 090

# MOMENT COEFF - NORMAL 120 FT/SEC NOMINAL



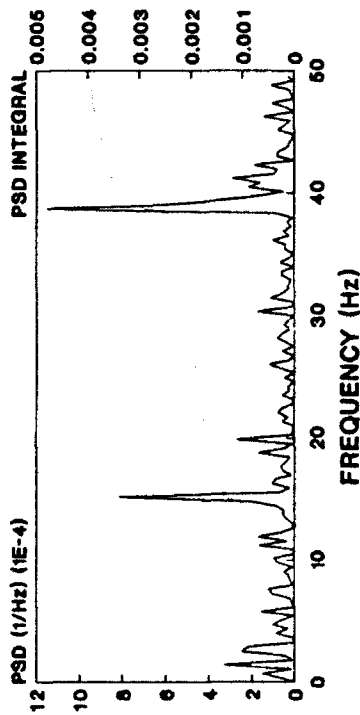
CUBE (R) - HT 8.8 - THETA 30 - AZ 090

# MOMENT COEFF - NORMAL 180 FT/SEC NOMINAL



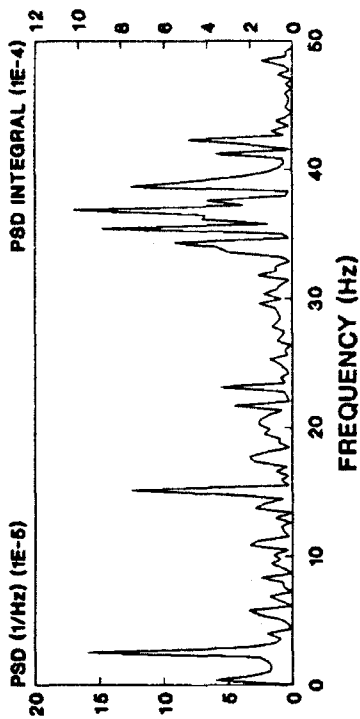
CUBE (R) - HT 8.8 - THETA 30 - AZ 090

# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



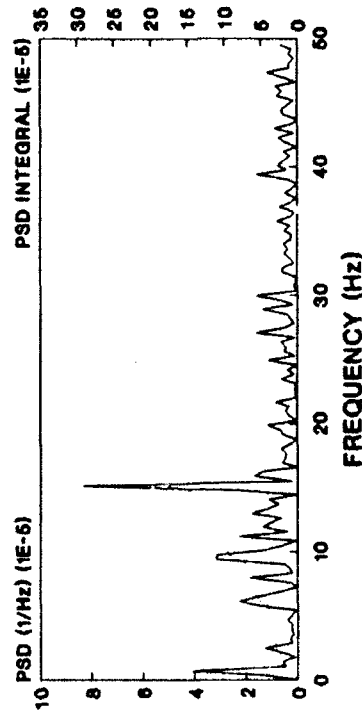
CUBE (R) - HT 8.9 - THETA 30 - AZ 090

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



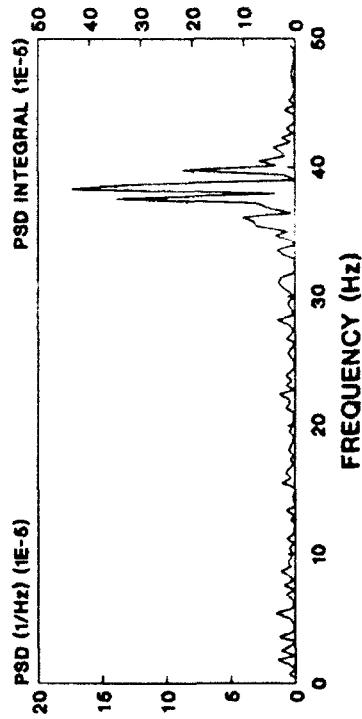
CUBE (R) - HT 8.9 - THETA 30 - AZ 090

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



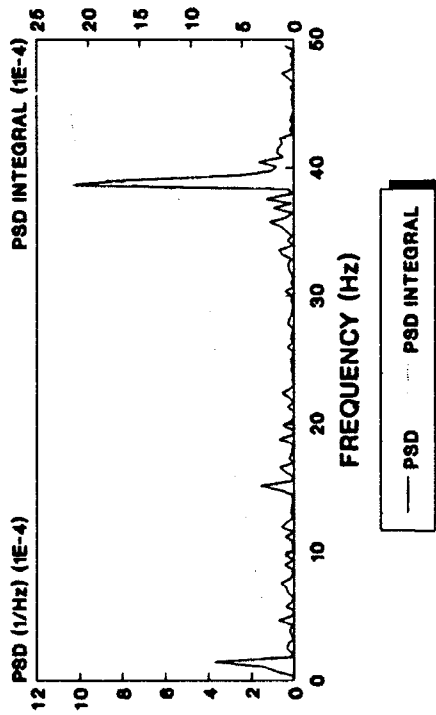
CUBE (R) - HT 8.9 - THETA 30 - AZ 090

# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



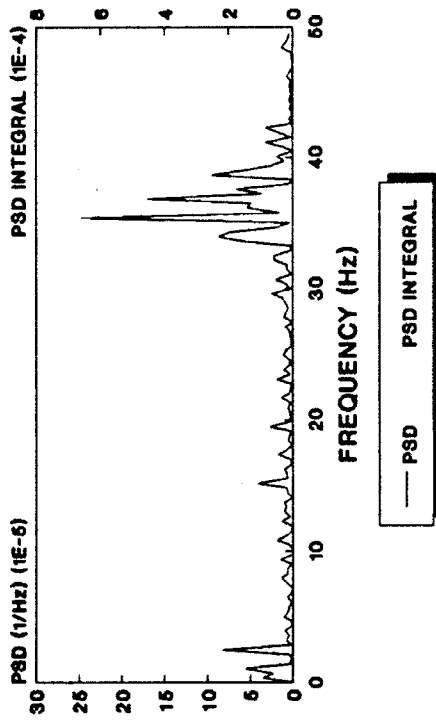
CUBE (R) - HT 8.9 - THETA 30 - AZ 090

# **MOMENT COEFF - LATERAL** **60 FT/SEC NOMINAL**



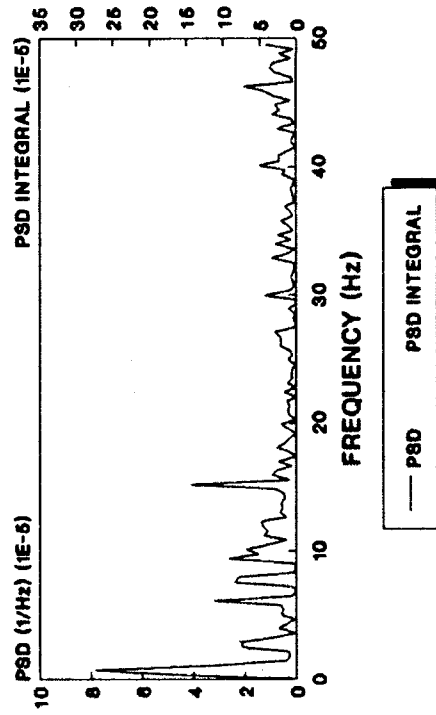
CUBE (R) - MT 8.9 - THETA 30 - AZ 090

# **MOMENT COEFF - LATERAL** **90 FT/SEC NOMINAL**



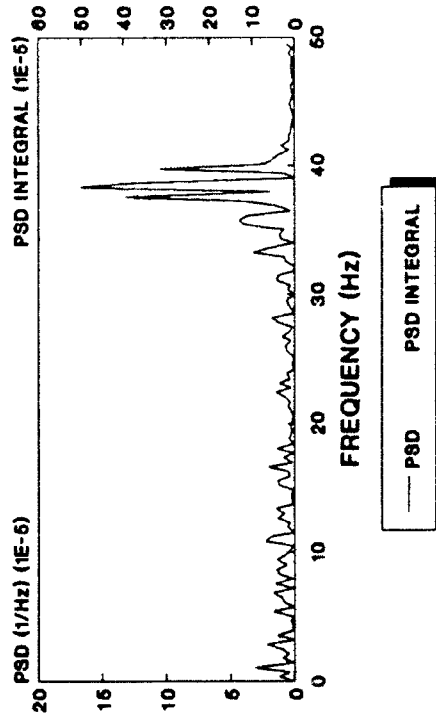
CUBE (R) - MT 8.9 - THETA 30 - AZ 090

# **MOMENT COEFF - LATERAL** **120 FT/SEC NOMINAL**



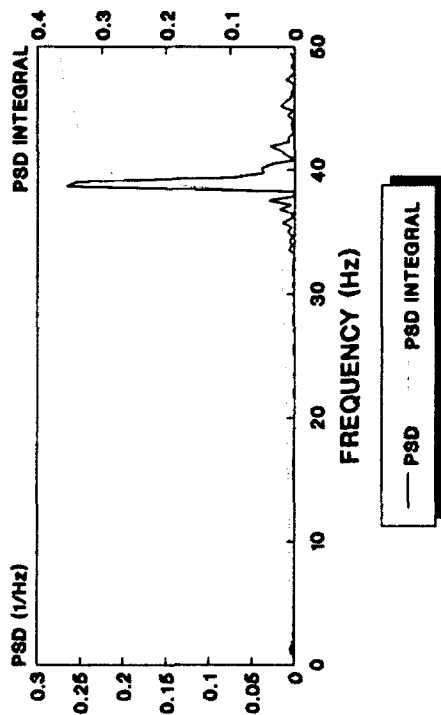
CUBE (R) - MT 8.9 - THETA 30 - AZ 090

# **MOMENT COEFF - LATERAL** **180 FT/SEC NOMINAL**



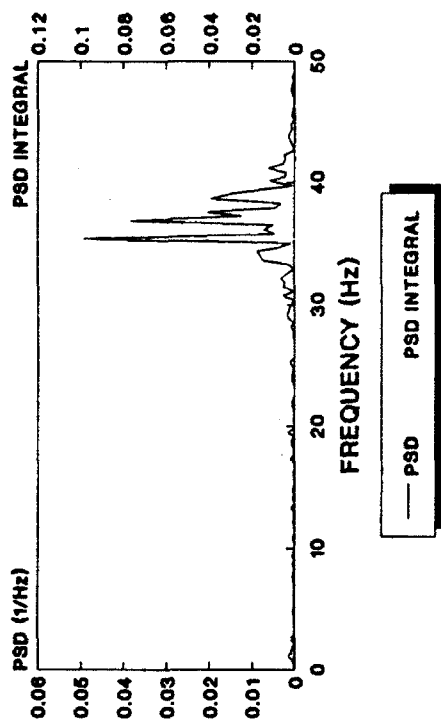
CUBE (R) - MT 8.9 - THETA 30 - AZ 090

# MOMENT COEFF - ROLL 60 FT/SEC NOMINAL



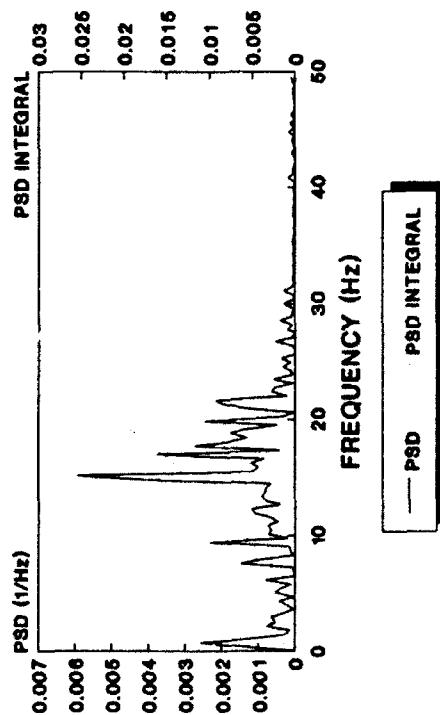
CUBE (R) - HT 8.8 - THETA 30 - AZ 090

# MOMENT COEFF - ROLL 90 FT/SEC NOMINAL



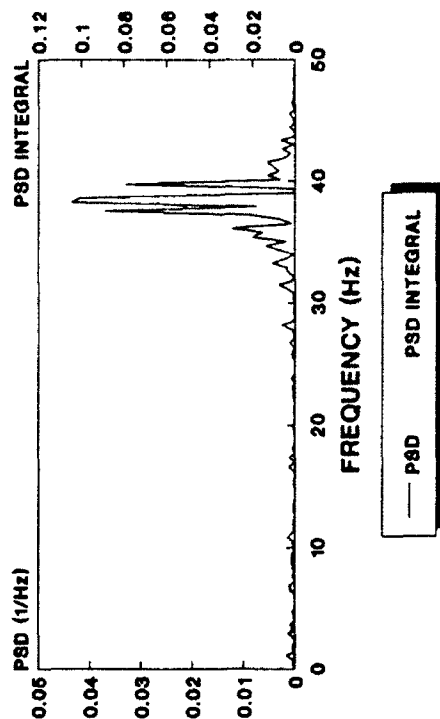
CUBE (R) - HT 8.8 - THETA 30 - AZ 090

# MOMENT COEFF - ROLL 120 FT/SEC NOMINAL



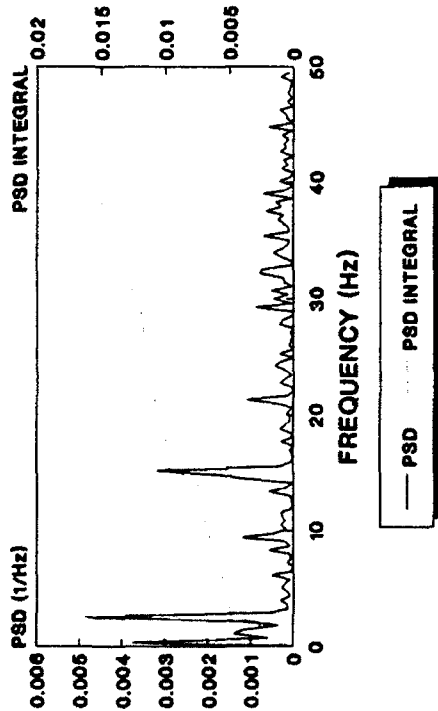
CUBE (R) - HT 8.8 - THETA 30 - AZ 090

# MOMENT COEFF - ROLL 180 FT/SEC NOMINAL



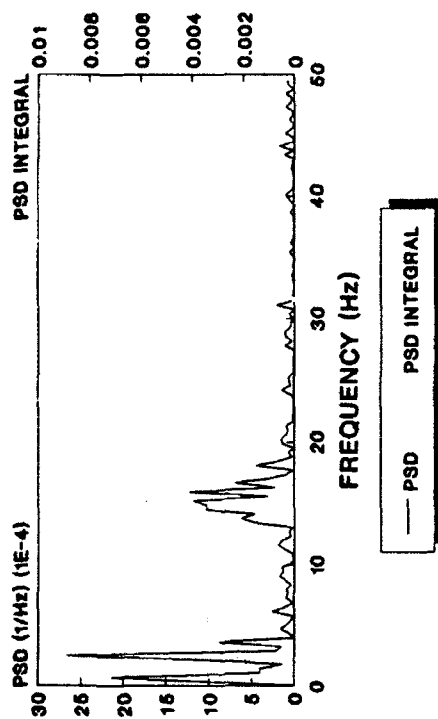
CUBE (R) - HT 8.8 - THETA 30 - AZ 090

# FORCE COEFF - NORMAL 60 FT/SEC NOMINAL



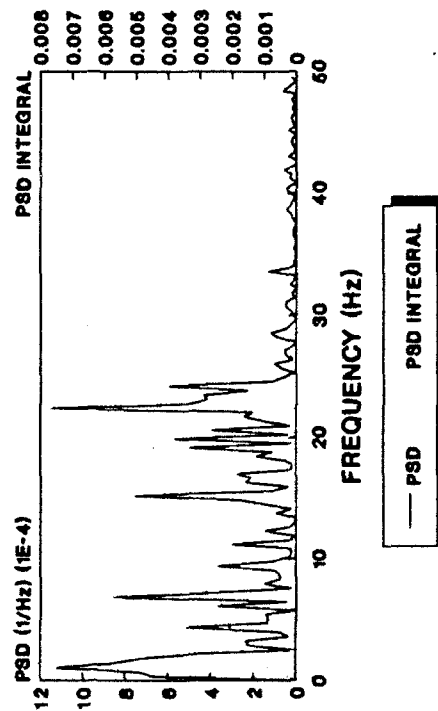
CUBE (R) - HT 8.8 - THETA 30 - AZ 120

# FORCE COEFF - NORMAL 90 FT/SEC NOMINAL



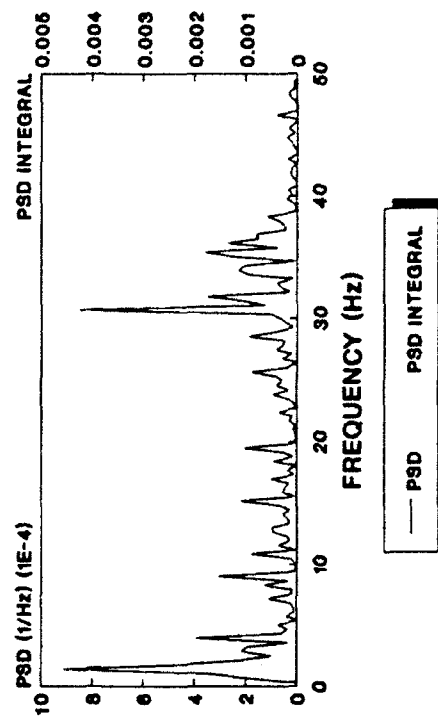
CUBE (R) - HT 8.8 - THETA 30 - AZ 120

# FORCE COEFF - NORMAL 120 FT/SEC NOMINAL



CUBE (R) - HT 8.8 - THETA 30 - AZ 120

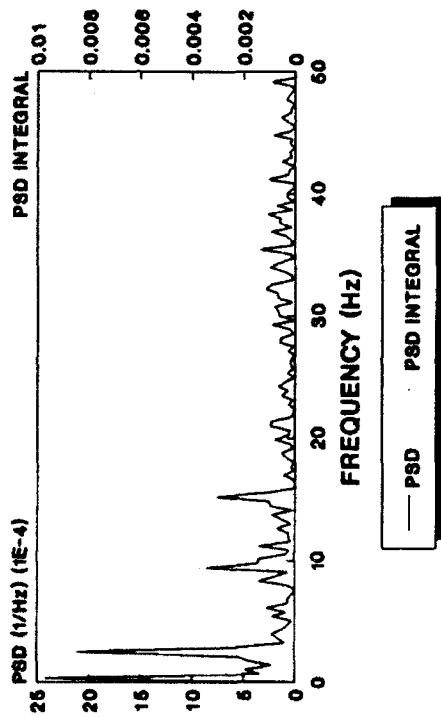
# FORCE COEFF - NORMAL 180 FT/SEC NOMINAL



CUBE (R) - HT 8.8 - THETA 30 - AZ 120

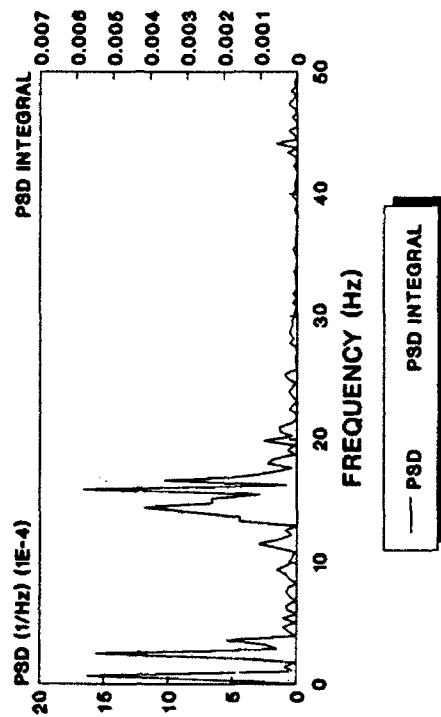


# MOMENT COEFF - NORMAL 60 FT/SEC NOMINAL



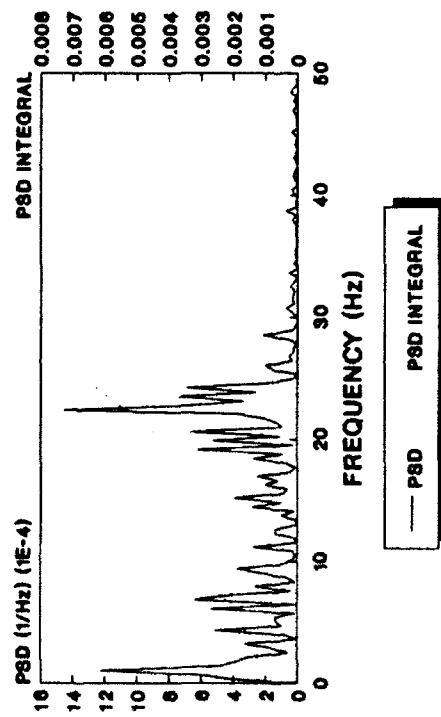
CUBE (R) - HT 8.9 - THETA 30 - AZ 120

# MOMENT COEFF - NORMAL 90 FT/SEC NOMINAL



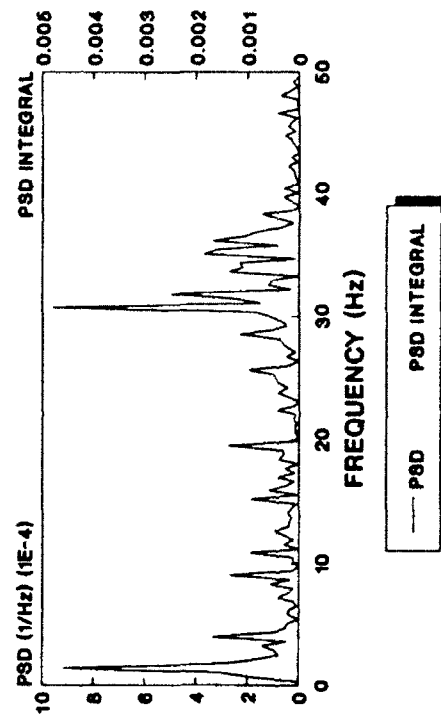
CUBE (R) - HT 8.9 - THETA 30 - AZ 120

# MOMENT COEFF - NORMAL 120 FT/SEC NOMINAL



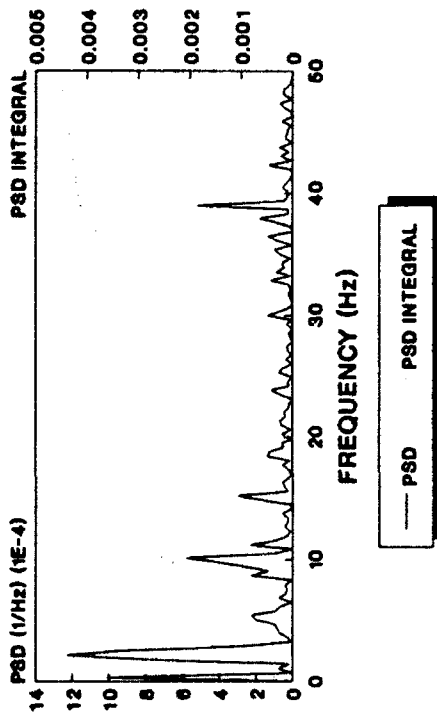
CUBE (R) - HT 8.9 - THETA 30 - AZ 120

# MOMENT COEFF - NORMAL 180 FT/SEC NOMINAL



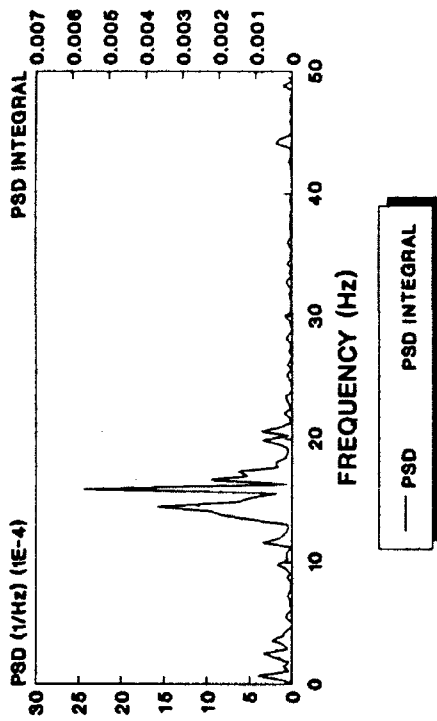
CUBE (R) - HT 8.9 - THETA 30 - AZ 120

# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



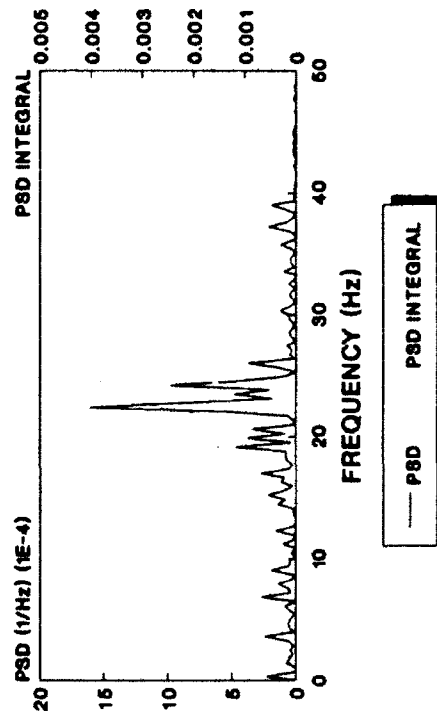
CUBE (R) - HT 8.9 - THETA 30 - AZ 120

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



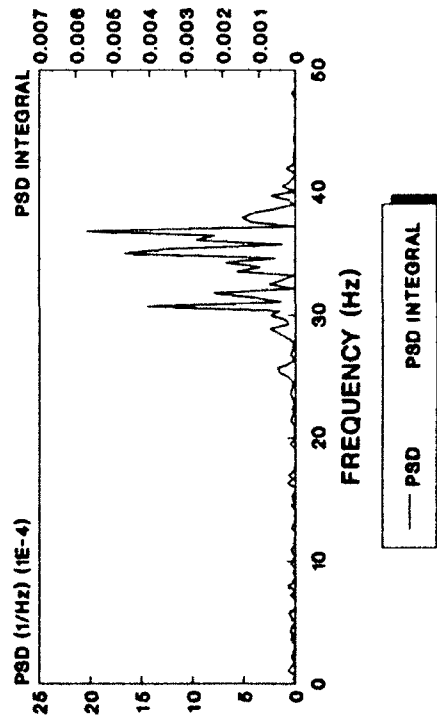
CUBE (R) - HT 8.9 - THETA 30 - AZ 120

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



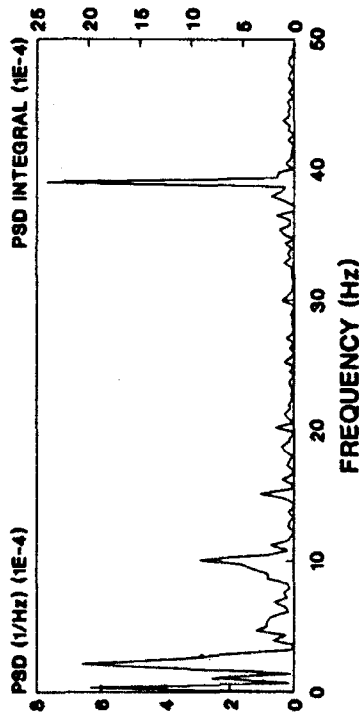
CUBE (R) - HT 8.9 - THETA 30 - AZ 120

# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



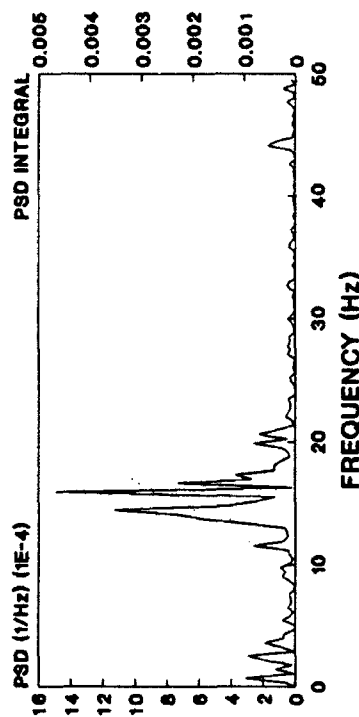
CUBE (R) - HT 8.9 - THETA 30 - AZ 120

# MOMENT COEFF - LATERAL 60 FT/SEC NOMINAL



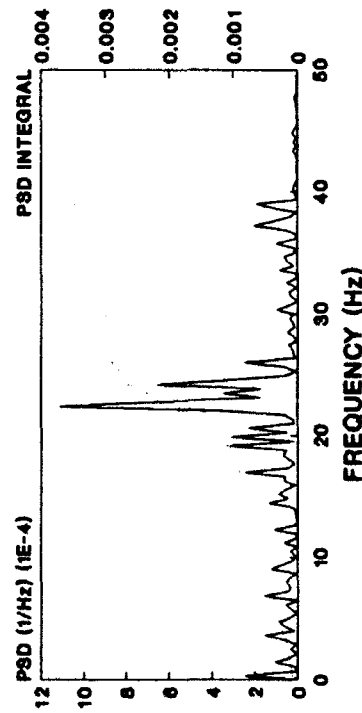
CUBE (R) - HT 6.9 - THETA 30 - AZ 120

# MOMENT COEFF - LATERAL 90 FT/SEC NOMINAL



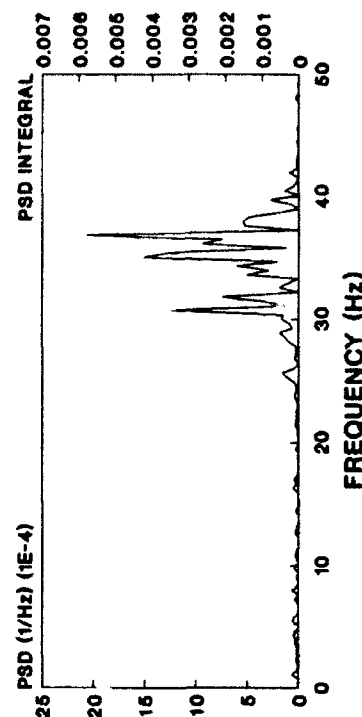
CUBE (R) - HT 6.9 - THETA 30 - AZ 120

# MOMENT COEFF - LATERAL 120 FT/SEC NOMINAL



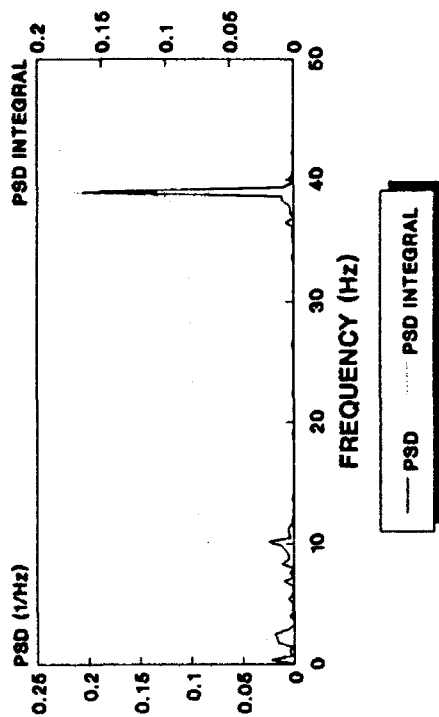
CUBE (R) - HT 6.9 - THETA 30 - AZ 120

# MOMENT COEFF - LATERAL 180 FT/SEC NOMINAL



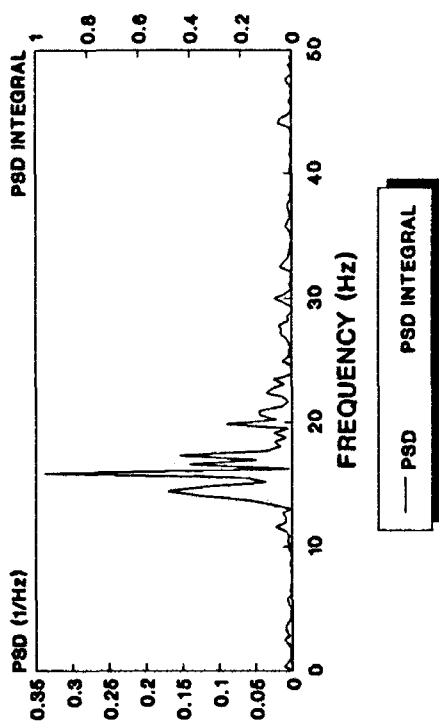
CUBE (R) - HT 6.9 - THETA 30 - AZ 120

# MOMENT COEFF - ROLL 60 FT/SEC NOMINAL



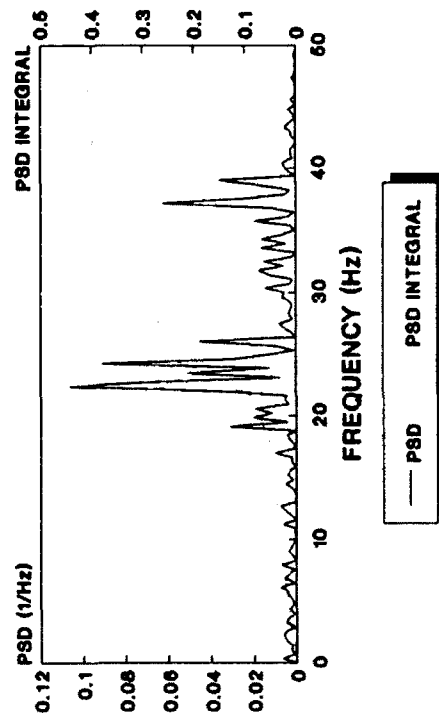
CUBE (R) - HT 8.9 - THETA 30 - AZ 120

# MOMENT COEFF - ROLL 90 FT/SEC NOMINAL



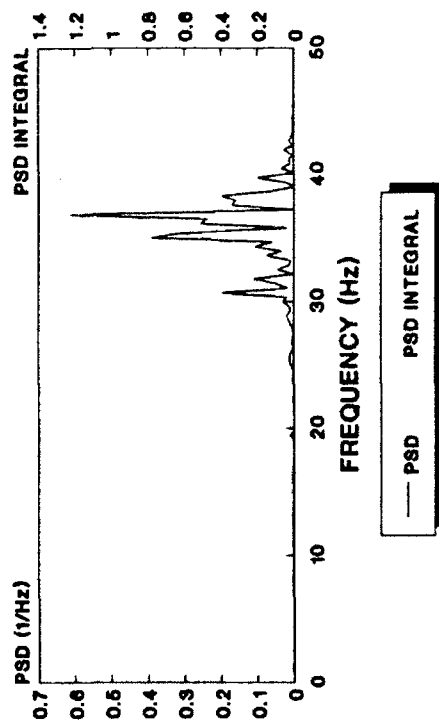
CUBE (R) - HT 8.9 - THETA 30 - AZ 120

# MOMENT COEFF - ROLL 120 FT/SEC NOMINAL



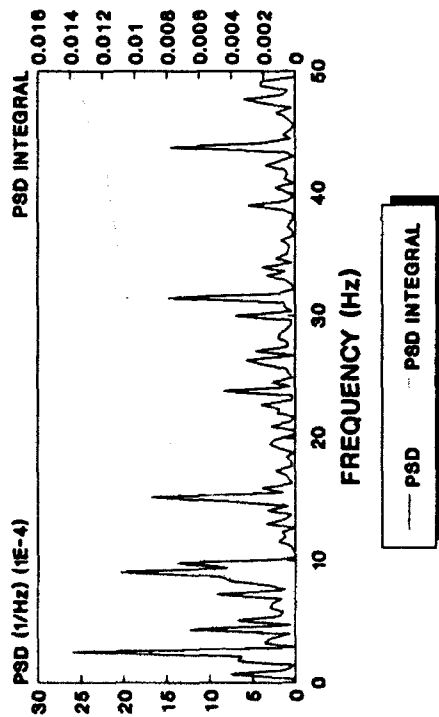
CUBE (R) - HT 8.9 - THETA 30 - AZ 120

# MOMENT COEFF - ROLL 180 FT/SEC NOMINAL



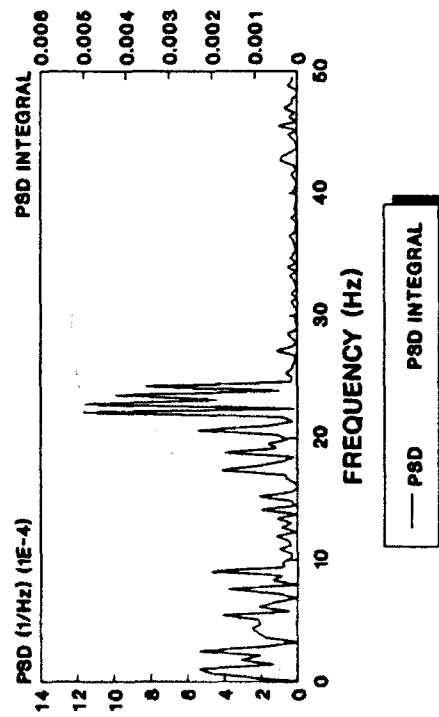
CUBE (R) - HT 8.9 - THETA 30 - AZ 120

# FORCE COEFF - NORMAL 60 FT/SEC NOMINAL



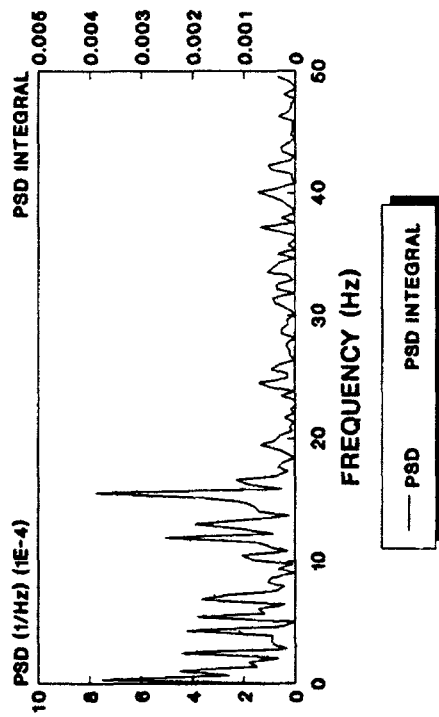
CUBE (R) - HT 8.9 - THETA 30 - AZ 136

# FORCE COEFF - NORMAL 120 FT/SEC NOMINAL



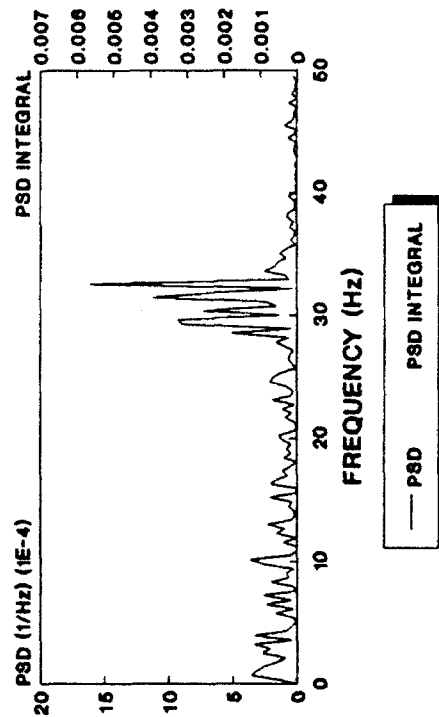
CUBE (R) - HT 8.9 - THETA 30 - AZ 136

# FORCE COEFF - NORMAL 90 FT/SEC NOMINAL



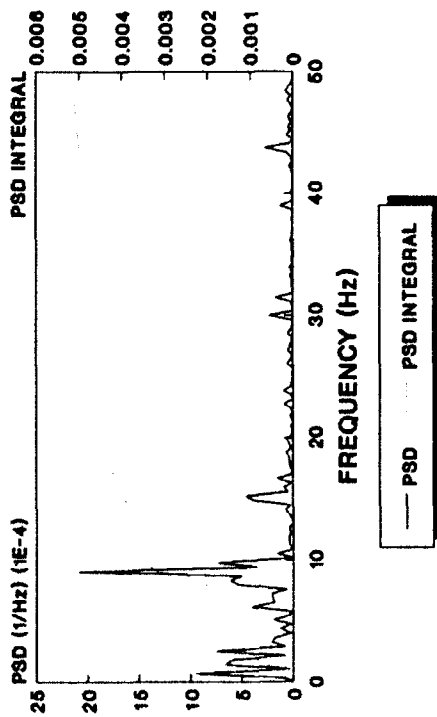
CUBE (R) - HT 8.9 - THETA 30 - AZ 136

# FORCE COEFF - NORMAL 180 FT/SEC NOMINAL



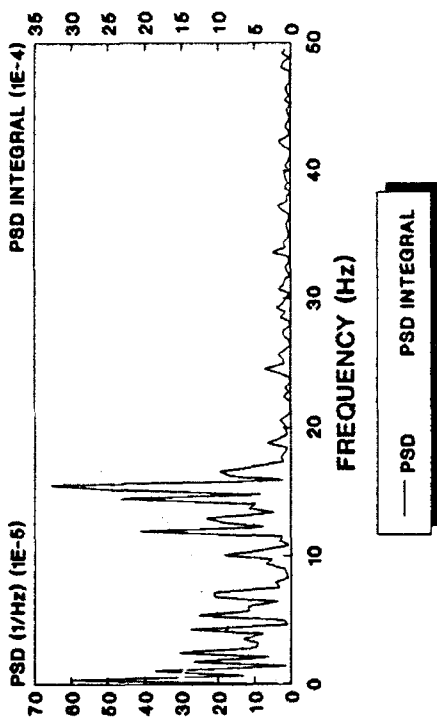
CUBE (R) - HT 8.9 - THETA 30 - AZ 136

# MOMENT COEFF - NORMAL 60 FT/SEC NOMINAL



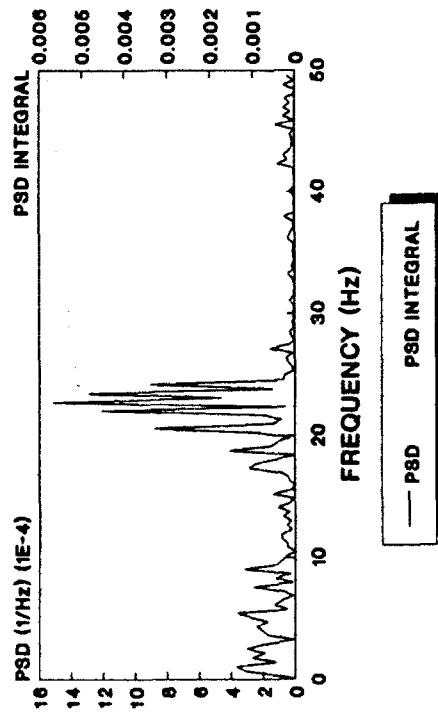
CUBE (R) - HT 8.9 - THETA 30 - AZ 136

# MOMENT COEFF - NORMAL 90 FT/SEC NOMINAL



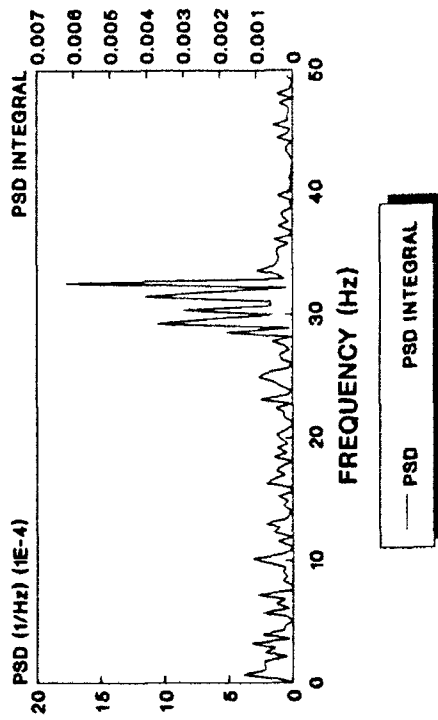
CUBE (R) - HT 8.9 - THETA 30 - AZ 136

# MOMENT COEFF - NORMAL 120 FT/SEC NOMINAL



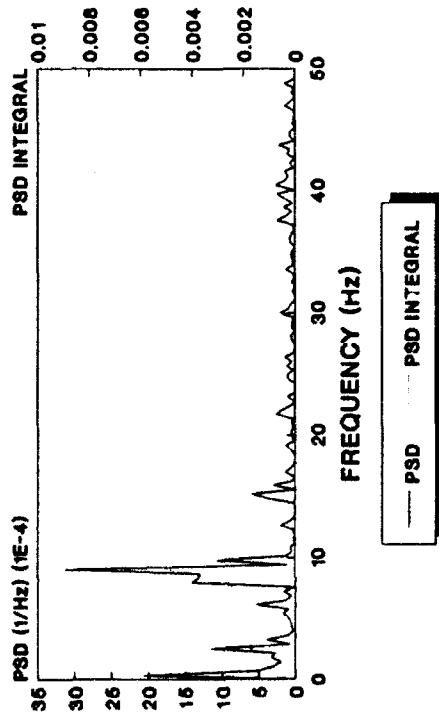
CUBE (R) - HT 8.9 - THETA 30 - AZ 136

# MOMENT COEFF - NORMAL 180 FT/SEC NOMINAL



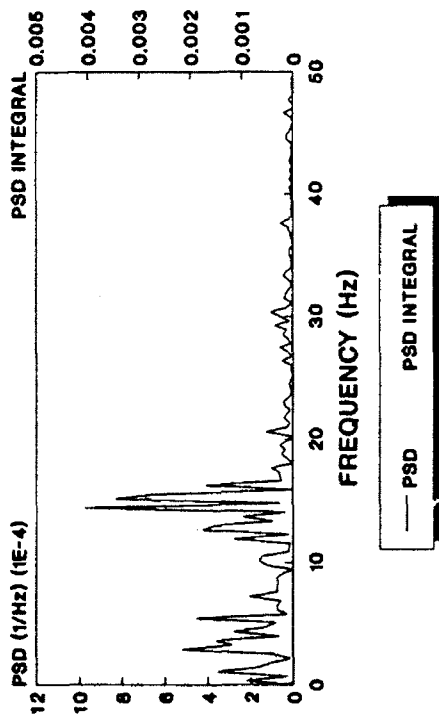
CUBE (R) - HT 8.9 - THETA 30 - AZ 136

# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



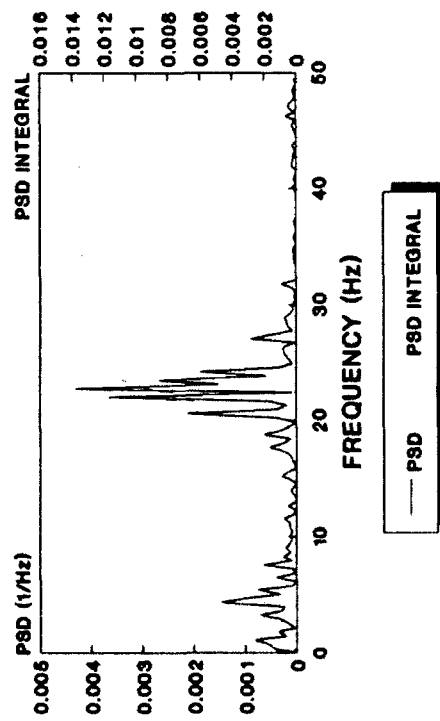
CUBE (R) - HT 8.9 - THETA 30 - AZ 136

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



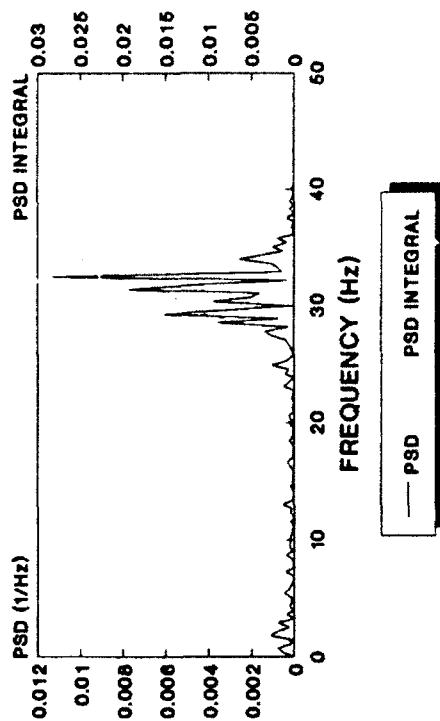
CUBE (R) - HT 8.9 - THETA 30 - AZ 136

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



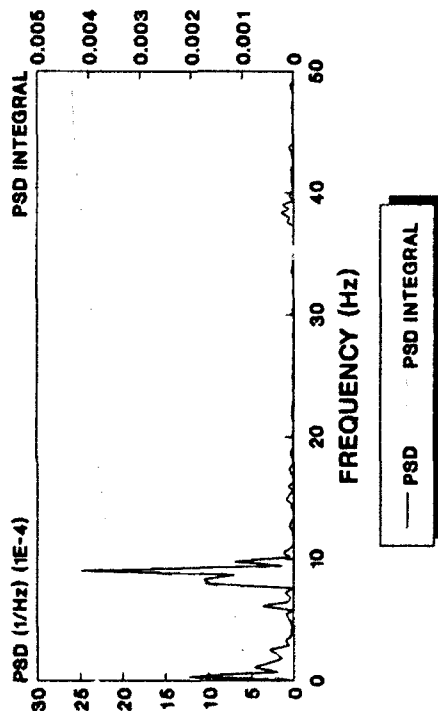
CUBE (R) - HT 8.9 - THETA 30 - AZ 136

# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



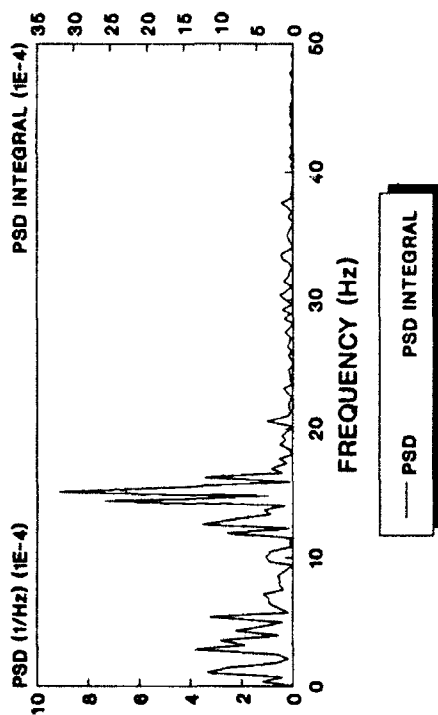
CUBE (R) - HT 8.9 - THETA 30 - AZ 136

# MOMENT COEFF - LATERAL 60 FT/SEC NOMINAL



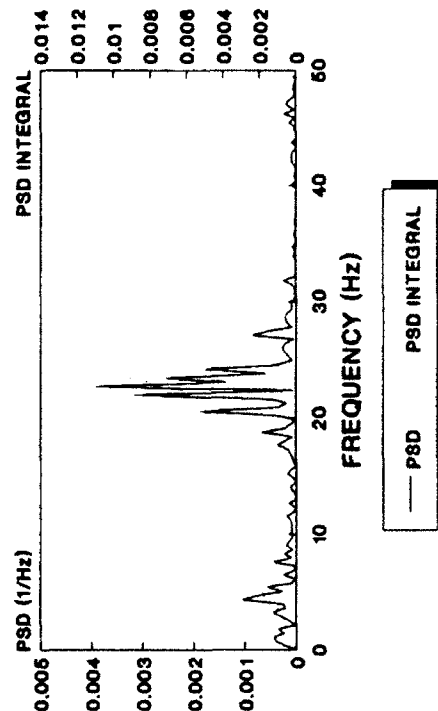
CUBE (R) - HT 8.9 - THETA 30 - AZ 136

# MOMENT COEFF - LATERAL 90 FT/SEC NOMINAL



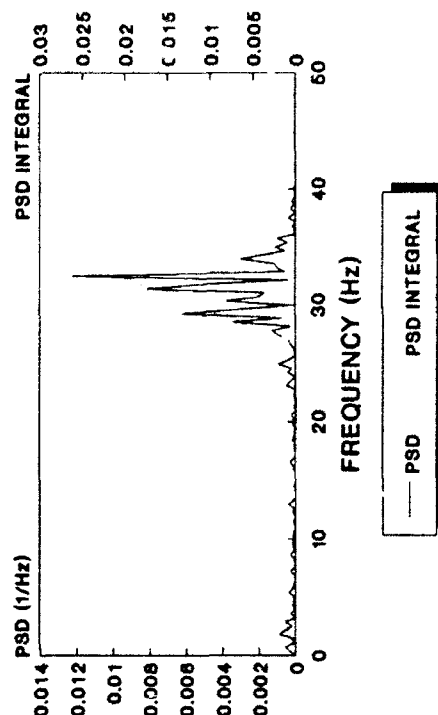
CUBE (R) - HT 8.9 - THETA 30 - AZ 136

# MOMENT COEFF - LATERAL 120 FT/SEC NOMINAL



CUBE (R) - HT 8.9 - THETA 30 - AZ 136

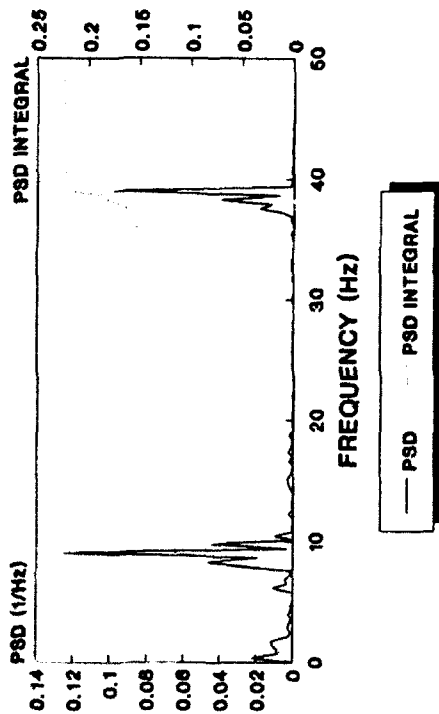
# MOMENT COEFF - LATERAL 180 FT/SEC NOMINAL



CUBE (R) - HT 8.9 - THETA 30 - AZ 136

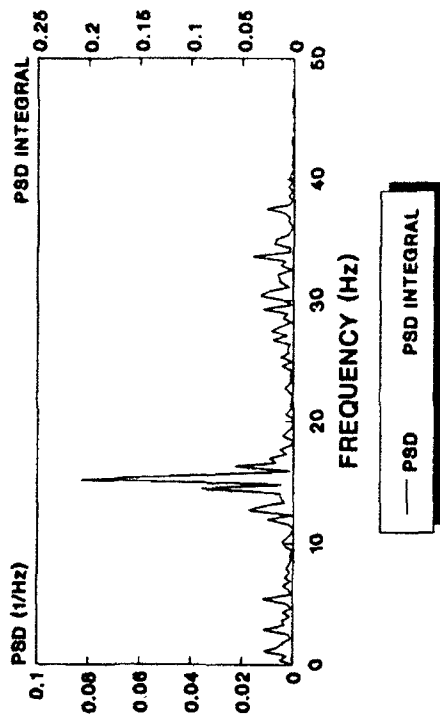


# MOMENT COEFF - ROLL 60 FT/SEC NOMINAL



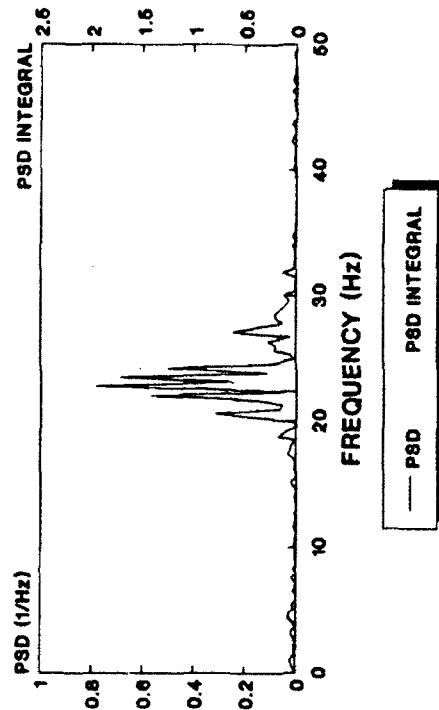
CUBE (R) - HT 8.9 - THETA 30 - AZ 136

# MOMENT COEFF - ROLL 90 FT/SEC NOMINAL



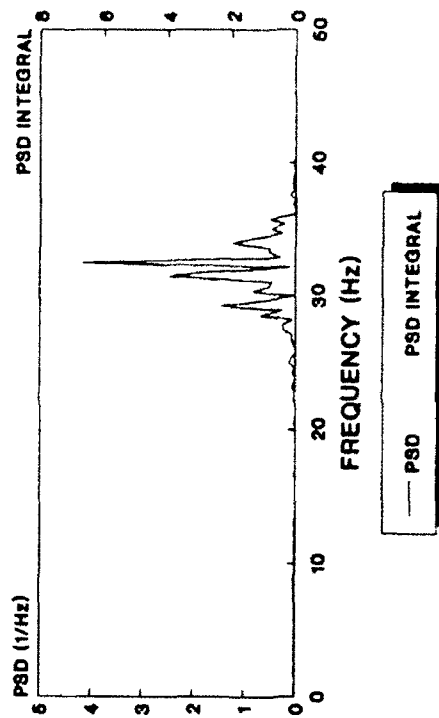
CUBE (R) - HT 8.9 - THETA 30 - AZ 136

# MOMENT COEFF - ROLL 120 FT/SEC NOMINAL



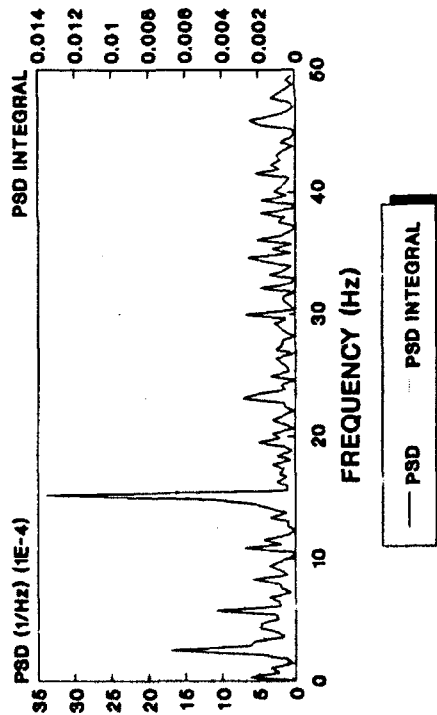
CUBE (R) - HT 8.9 - THETA 30 - AZ 136

# MOMENT COEFF - ROLL 180 FT/SEC NOMINAL



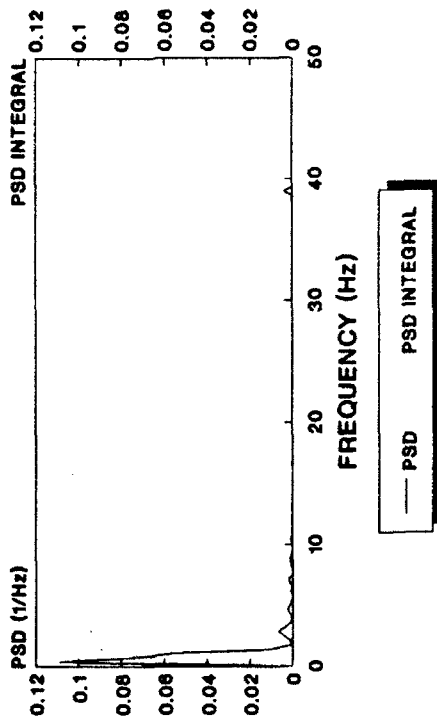
CUBE (R) - HT 8.9 - THETA 30 - AZ 136

# FORCE COEFF - NORMAL 60 FT/SEC NOMINAL



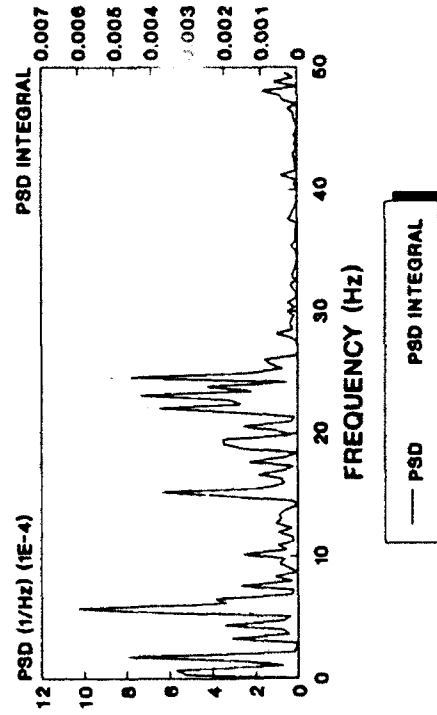
CUBE (R) - HT 8.9 - THETA 30 - AZ 160

# FORCE COEFF - NORMAL 90 FT/SEC NOMINAL



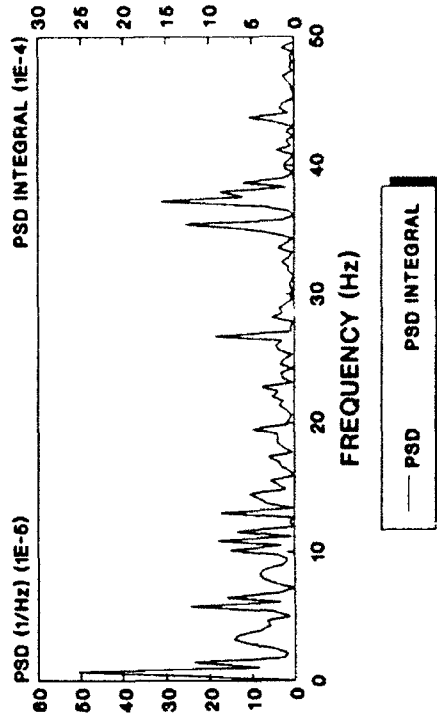
CUBE (R) - HT 8.9 - THETA 30 - AZ 160

# FORCE COEFF - NORMAL 120 FT/SEC NOMINAL



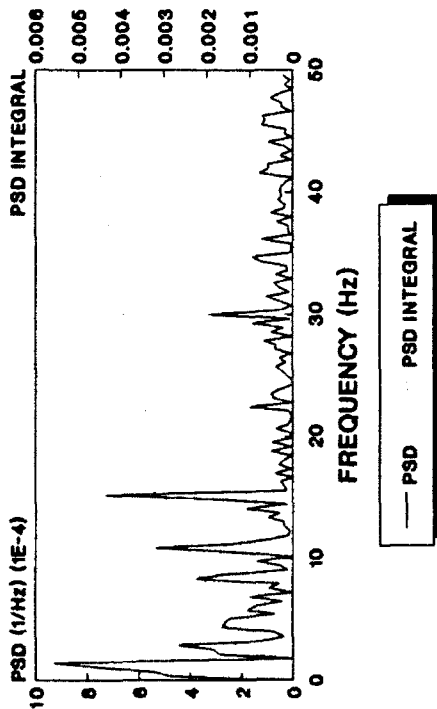
CUBE (R) - HT 8.9 - THETA 30 - AZ 160

# FORCE COEFF - NORMAL 180 FT/SEC NOMINAL



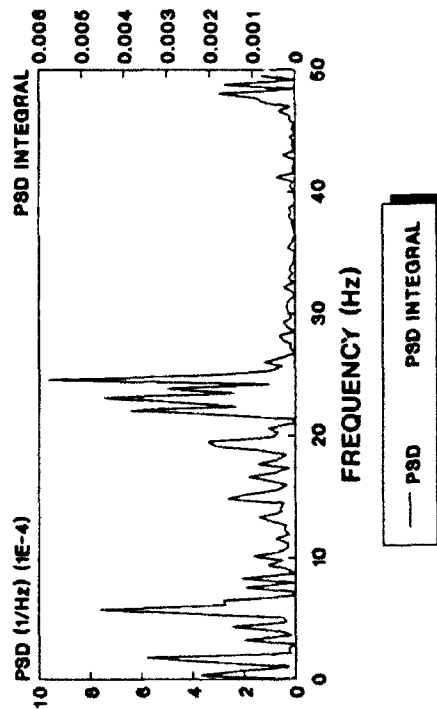
CUBE (R) - HT 8.9 - THETA 30 - AZ 160

# MOMENT COEFF - NORMAL 60 FT/SEC NOMINAL



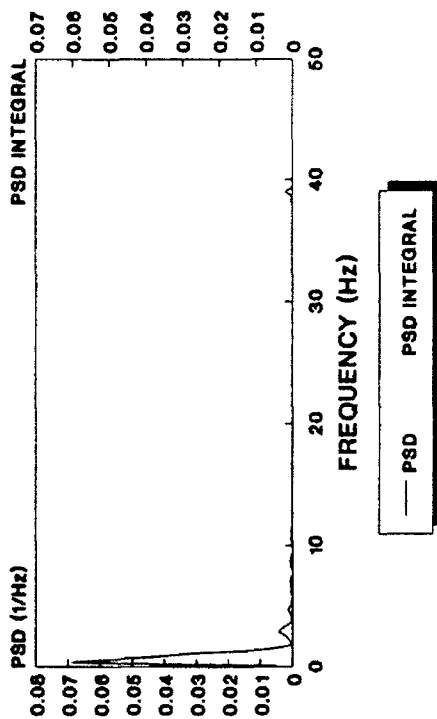
CUBE (R) - HT 8.9 - THETA 30 - AZ 160

# MOMENT COEFF - NORMAL 120 FT/SEC NOMINAL



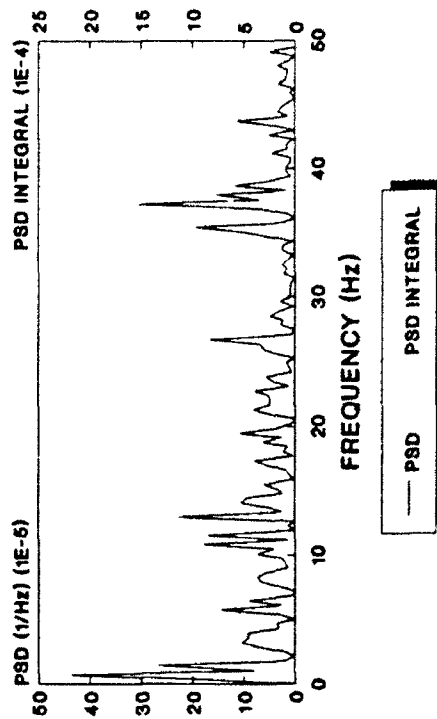
CUBE (R) - HT 8.9 - THETA 30 - AZ 160

# MOMENT COEFF - NORMAL 90 FT/SEC NOMINAL



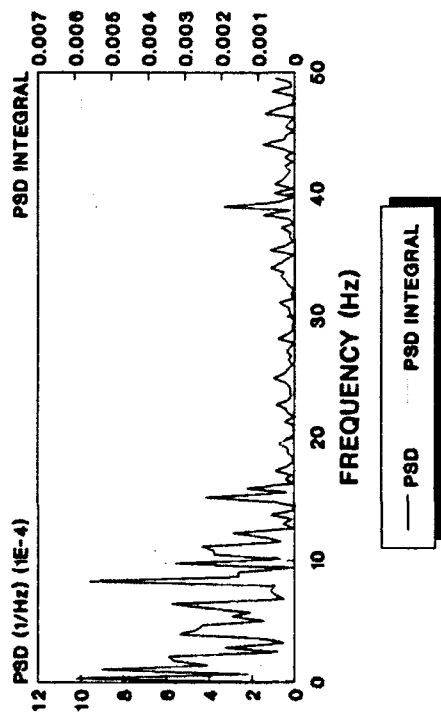
CUBE (R) - HT 8.9 - THETA 30 - AZ 160

# MOMENT COEFF - NORMAL 180 FT/SEC NOMINAL



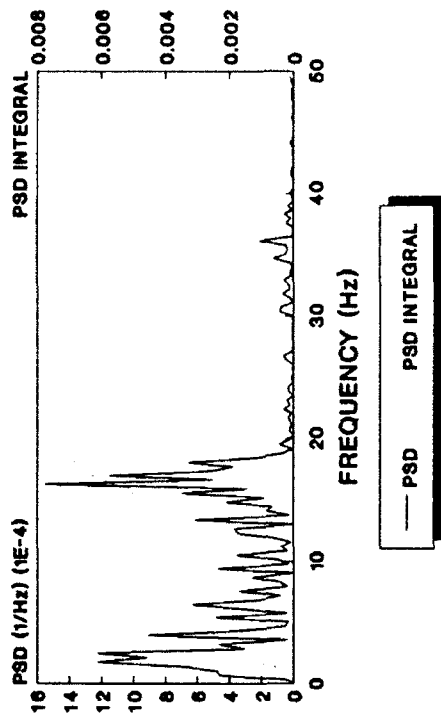
CUBE (R) - HT 8.9 - THETA 30 - AZ 160

# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



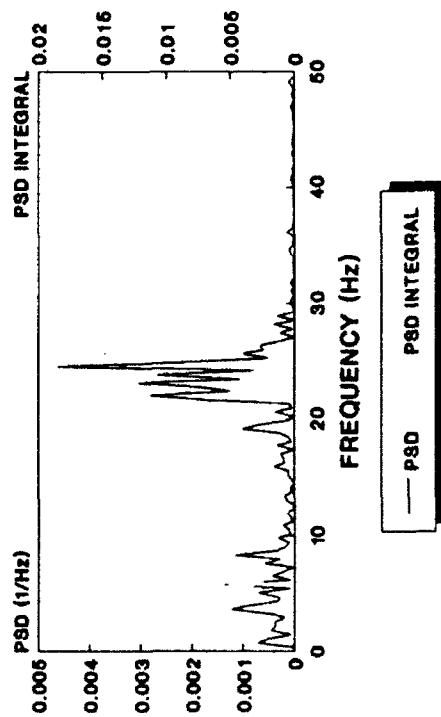
CUBE (R) - HT 8.9 - THETA 30 - AZ 150

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



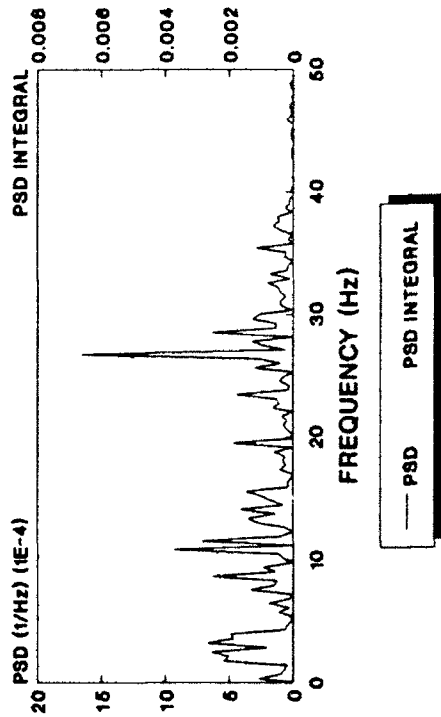
CUBE (R) - HT 8.9 - THETA 30 - AZ 150

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



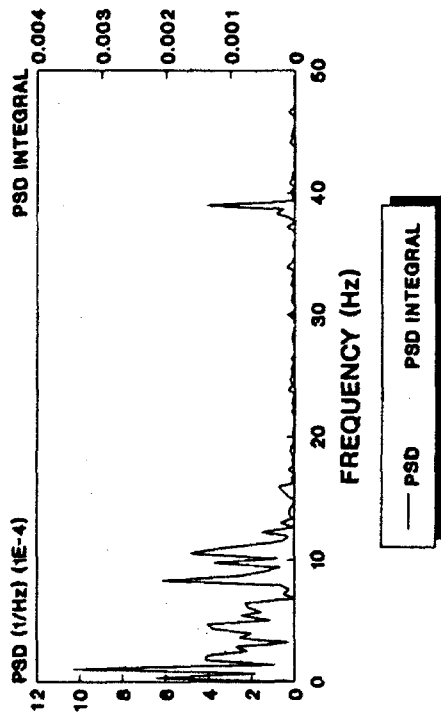
CUBE (R) - HT 8.9 - THETA 30 - AZ 150

# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



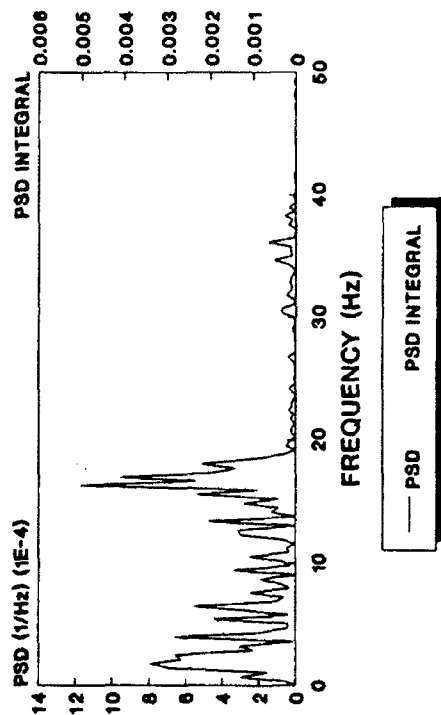
CUBE (R) - HT 8.9 - THETA 30 - AZ 150

# MOMENT COEFF - LATERAL 60 FT/SEC NOMINAL



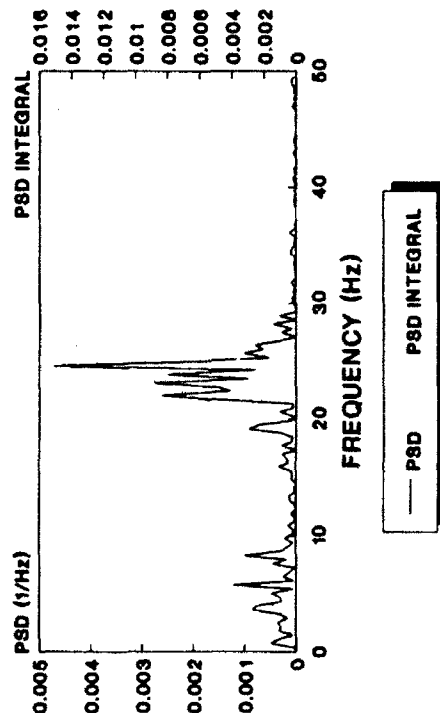
CUBE (R) - HT 6.9 - THETA 30 - AZ 160

# MOMENT COEFF - LATERAL 90 FT/SEC NOMINAL



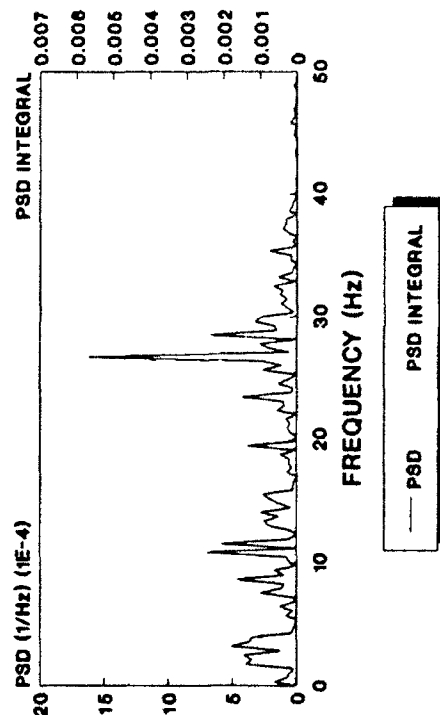
CUBE (R) - HT 6.9 - THETA 30 - AZ 160

# MOMENT COEFF - LATERAL 120 FT/SEC NOMINAL



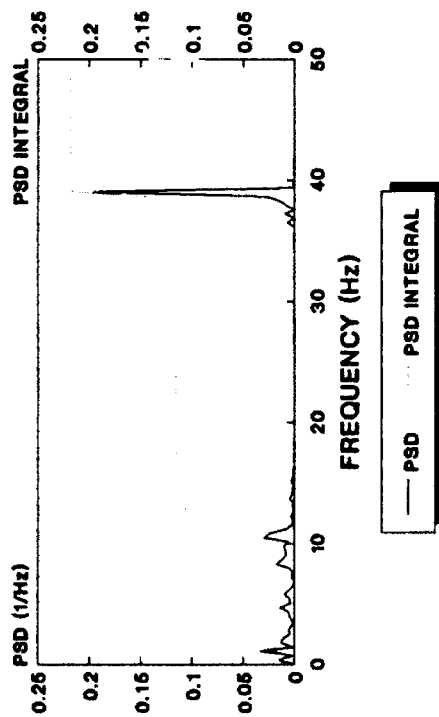
CUBE (R) - HT 6.9 - THETA 30 - AZ 160

# MOMENT COEFF - LATERAL 180 FT/SEC NOMINAL



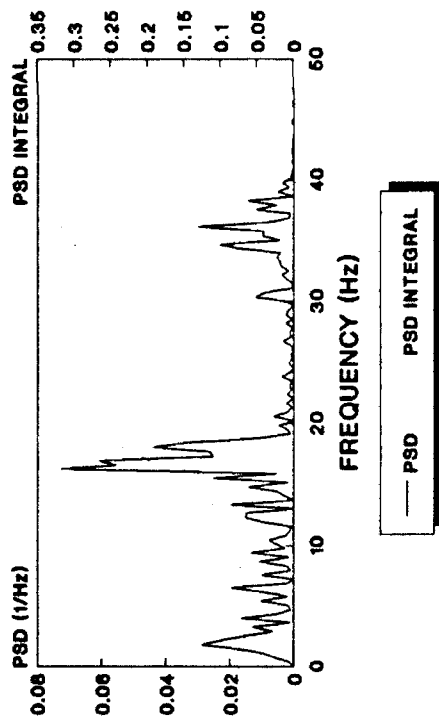
CUBE (R) - HT 6.9 - THETA 30 - AZ 160

# MOMENT COEFF - ROLL 60 FT/SEC NOMINAL



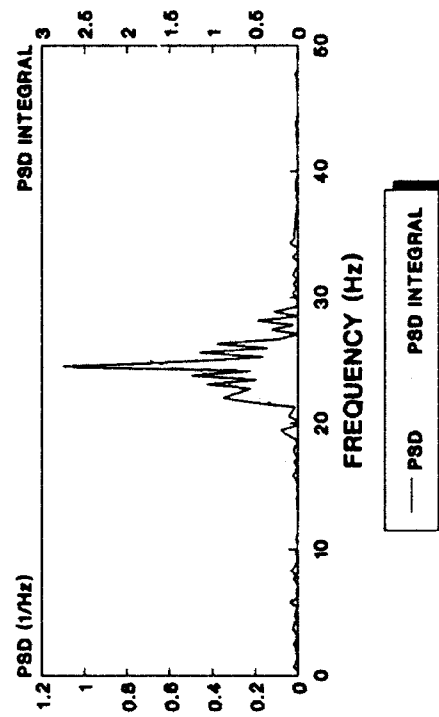
CUBE (R) - HT 8.9 - THETA 30 - AZ 160

# MOMENT COEFF - ROLL 90 FT/SEC NOMINAL



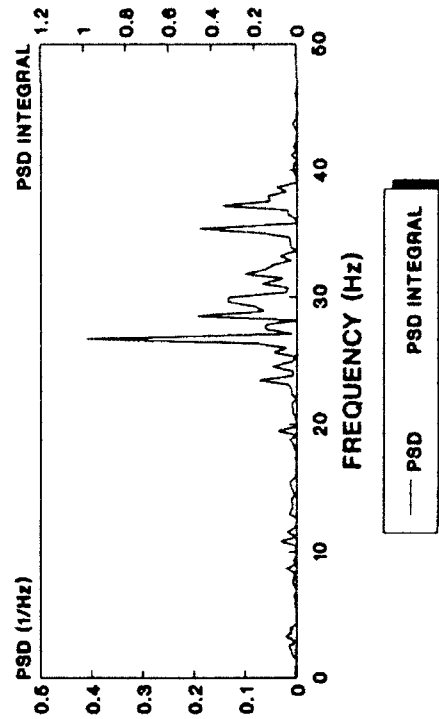
CUBE (R) - HT 8.9 - THETA 30 - AZ 160

# MOMENT COEFF - ROLL 120 FT/SEC NOMINAL



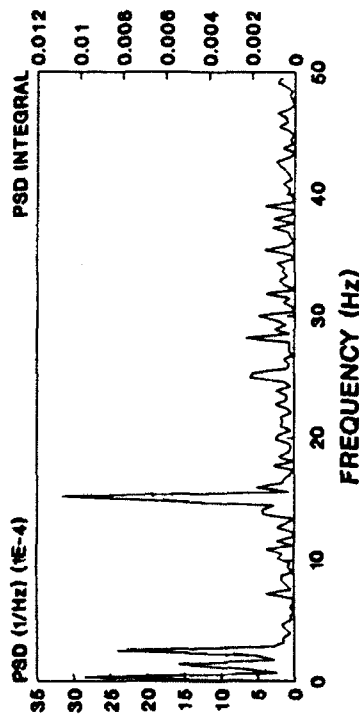
CUBE (R) - HT 8.9 - THETA 30 - AZ 160

# MOMENT COEFF - ROLL 180 FT/SEC NOMINAL



CUBE (R) - HT 8.9 - THETA 30 - AZ 160

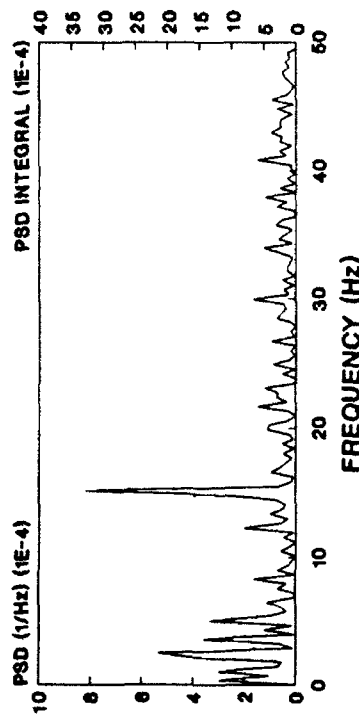
# FORCE COEFF - NORMAL 60 FT/SEC NOMINAL



— PSD    PSD INTEGRAL

CUBE (R) - HT 8.9 - THETA 30 - AZ 180

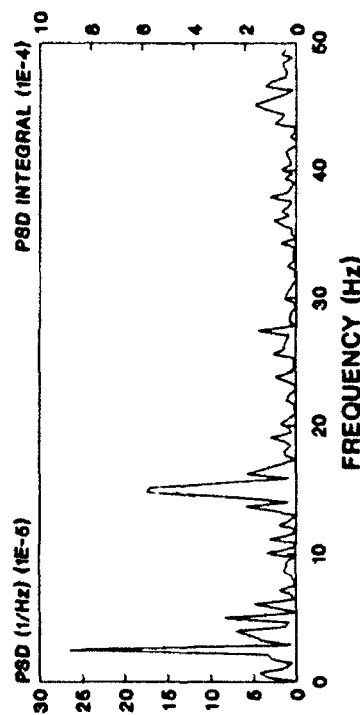
# FORCE COEFF - NORMAL 90 FT/SEC NOMINAL



— PSD    PSD INTEGRAL

CUBE (R) - HT 8.9 - THETA 30 - AZ 180

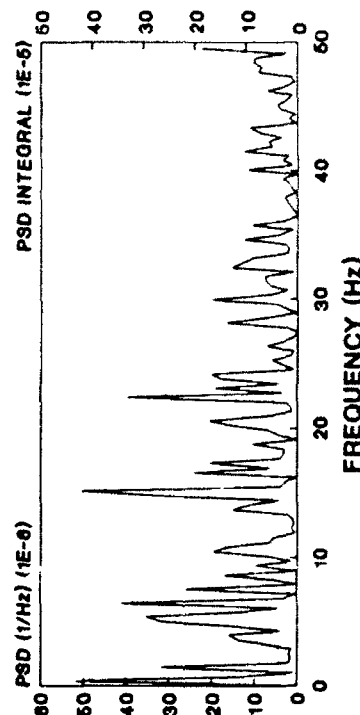
# FORCE COEFF - NORMAL 120 FT/SEC NOMINAL



— PSD    PSD INTEGRAL

CUBE (R) - HT 8.9 - THETA 30 - AZ 180

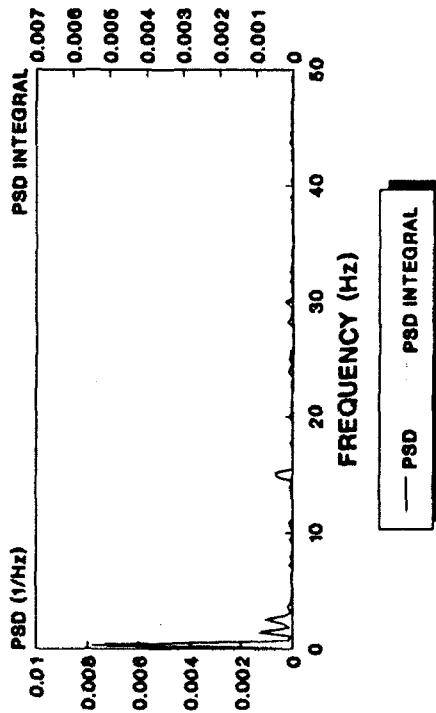
# FORCE COEFF - NORMAL 180 FT/SEC NOMINAL



— PSD    PSD INTEGRAL

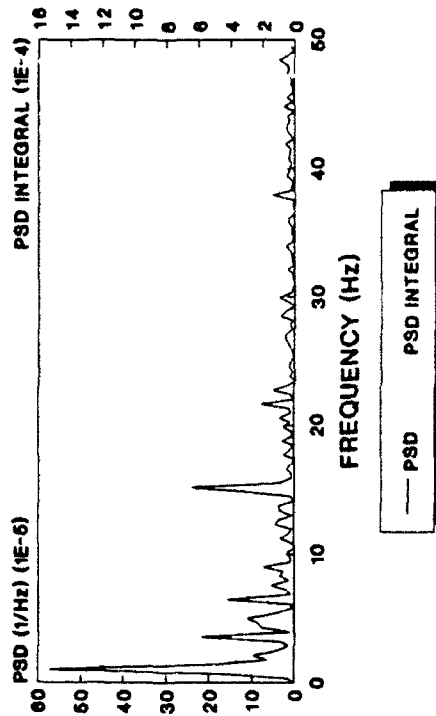
CUBE (R) - HT 8.9 - THETA 30 - AZ 180

# MOMENT COEFF - NORMAL 60 FT/SEC NOMINAL



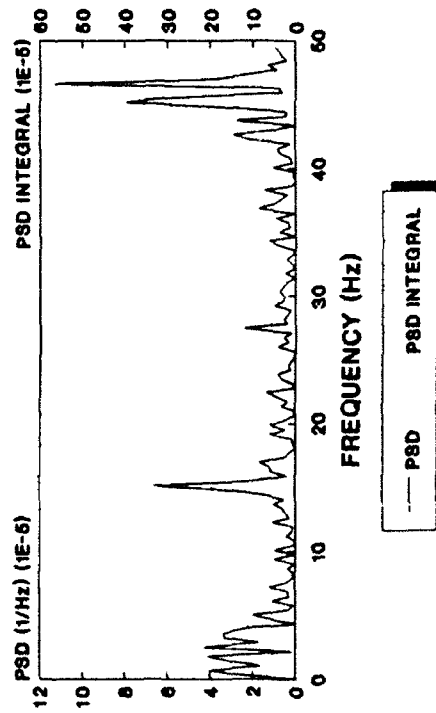
CUBE (R) - HT 8.9 - THETA 30 - AZ 180

# MOMENT COEFF - NORMAL 90 FT/SEC NOMINAL



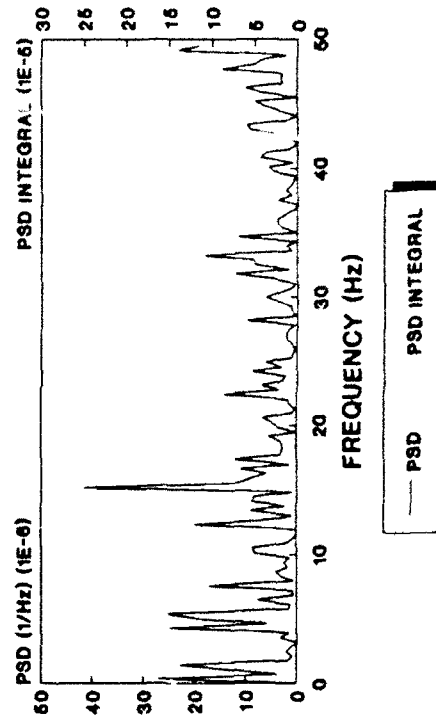
CUBE (R) - HT 8.9 - THETA 30 - AZ 180

# MOMENT COEFF - NORMAL 120 FT/SEC NOMINAL



CUBE (R) - HT 8.9 - THETA 30 - AZ 180

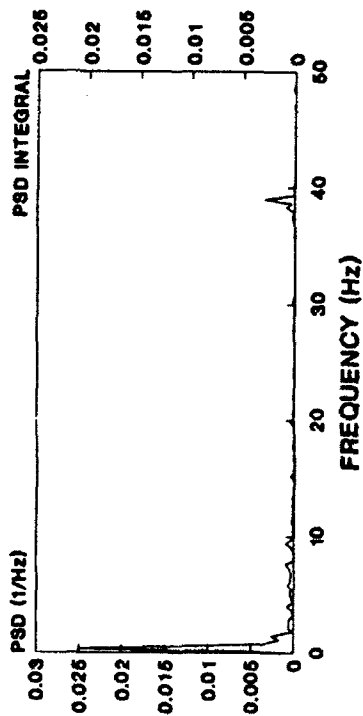
# MOMENT COEFF - NORMAL 180 FT/SEC NOMINAL



CUBE (R) - HT 8.9 - THETA 30 - AZ 180

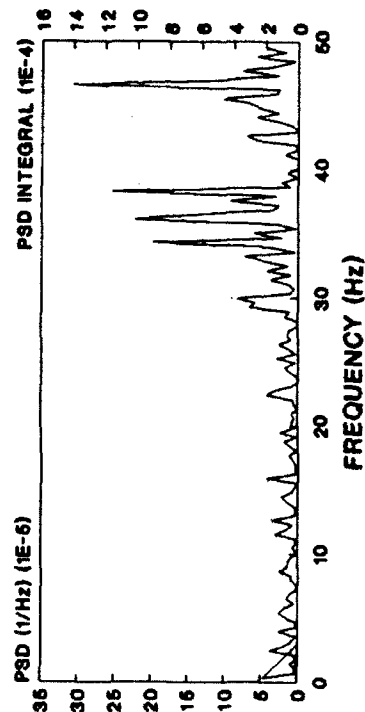


# FORCE COEFF - LATERAL 60 FT/SEC NOMINAL



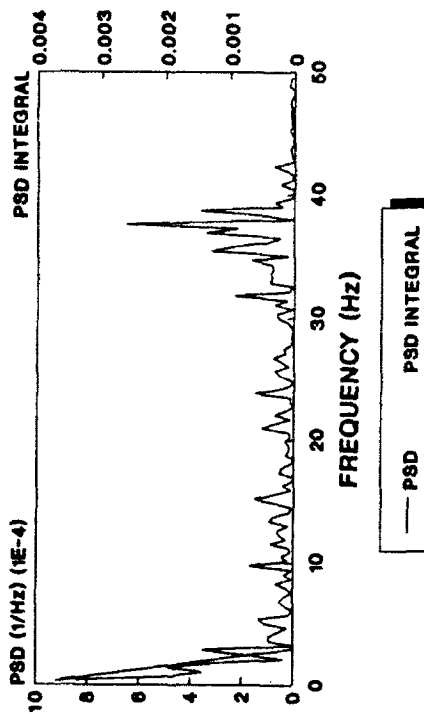
CUBE (R) - HT 8.9 - THETA 30 - AZ 180

# FORCE COEFF - LATERAL 120 FT/SEC NOMINAL



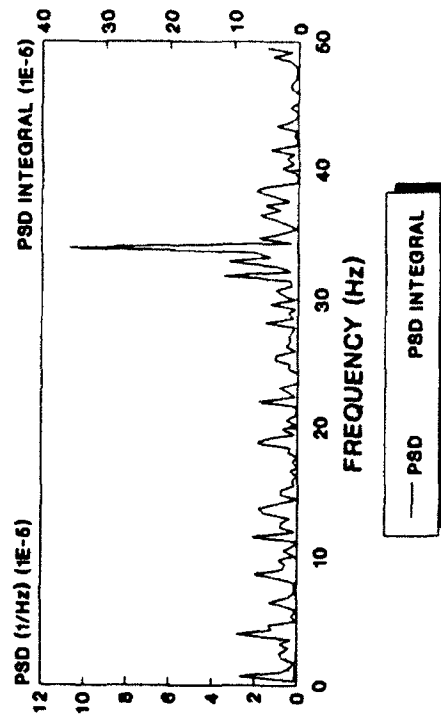
CUBE (R) - HT 8.9 - THETA 30 - AZ 180

# FORCE COEFF - LATERAL 90 FT/SEC NOMINAL



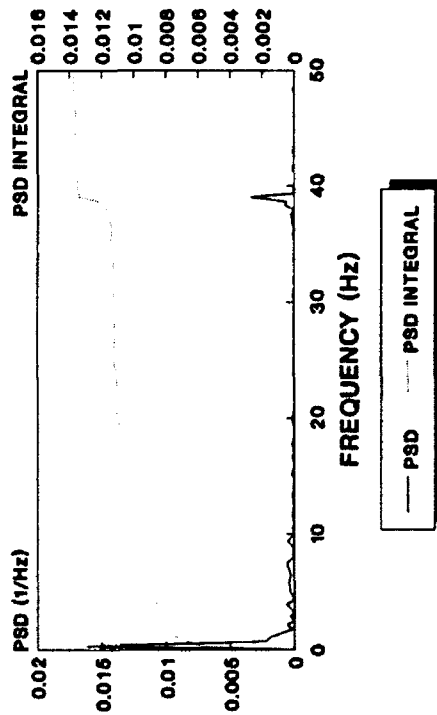
CUBE (R) - HT 8.9 - THETA 30 - AZ 180

# FORCE COEFF - LATERAL 180 FT/SEC NOMINAL



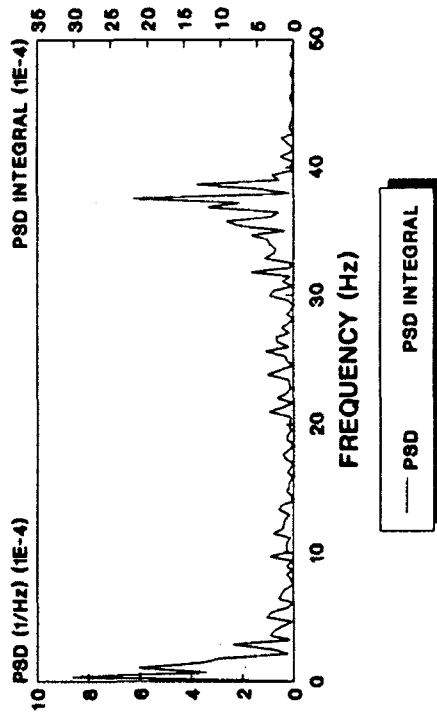
CUBE (R) - HT 8.9 - THETA 30 - AZ 180

# MOMENT COEFF - LATERAL 60 FT/SEC NOMINAL



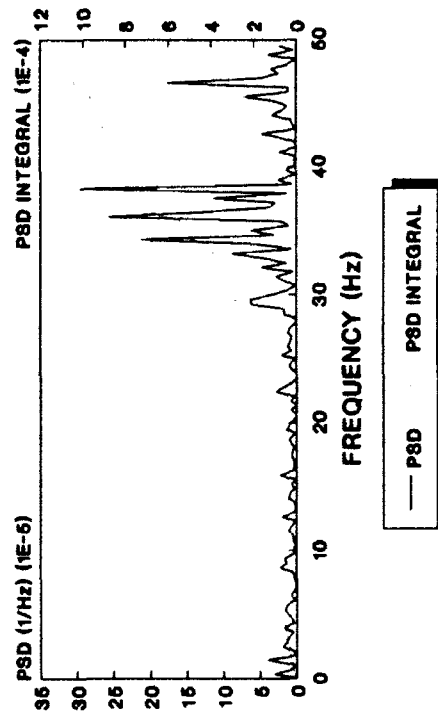
CUBE (R) - HT 8.9 - THETA 30 - AZ 180

# MOMENT COEFF - LATERAL 90 FT/SEC NOMINAL



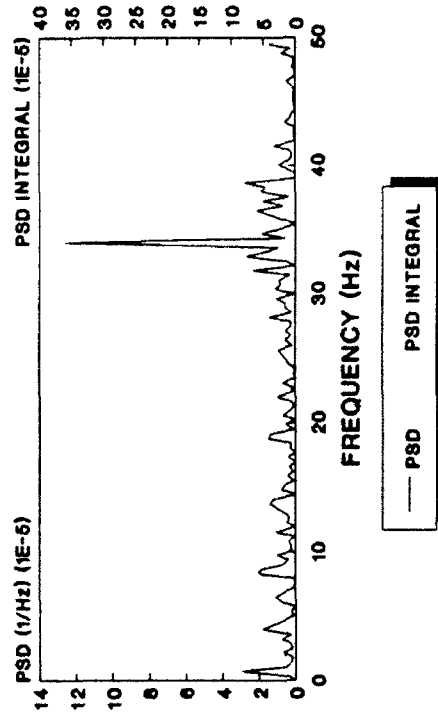
CUBE (R) - HT 8.9 - THETA 30 - AZ 180

# MOMENT COEFF - LATERAL 120 FT/SEC NOMINAL



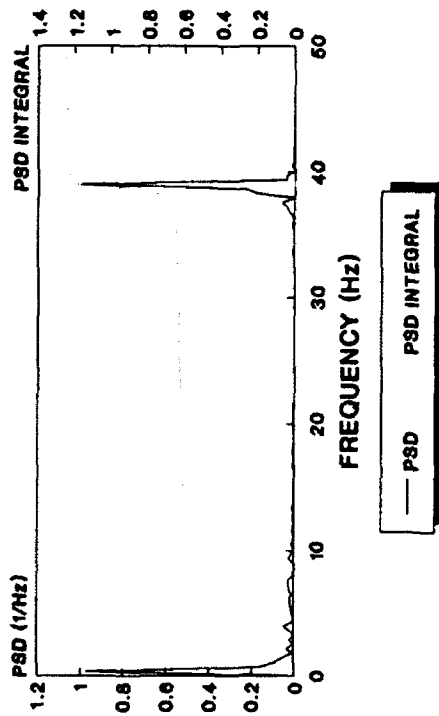
CUBE (R) - HT 8.9 - THETA 30 - AZ 180

# MOMENT COEFF - LATERAL 180 FT/SEC NOMINAL



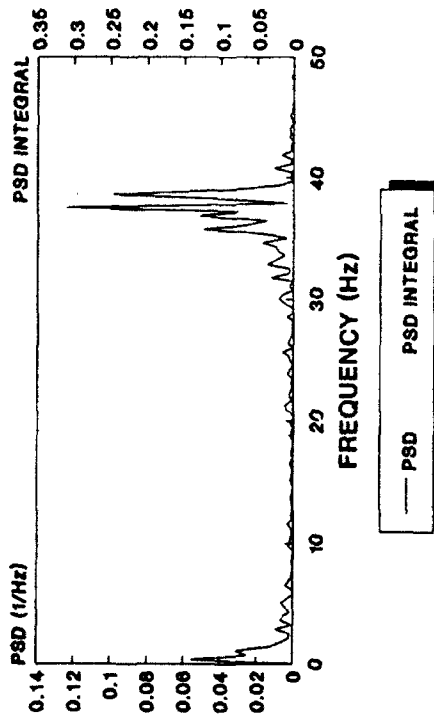
CUBE (R) - HT 8.9 - THETA 30 - AZ 180

# MOMENT COEFF - ROLL 60 FT/SEC NOMINAL



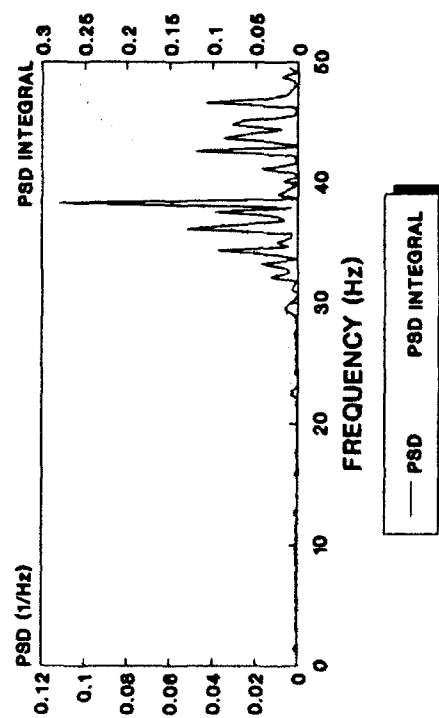
CUBE (R) - HT 8.9 - THETA 30 - AZ 180

# MOMENT COEFF - ROLL 90 FT/SEC NOMINAL



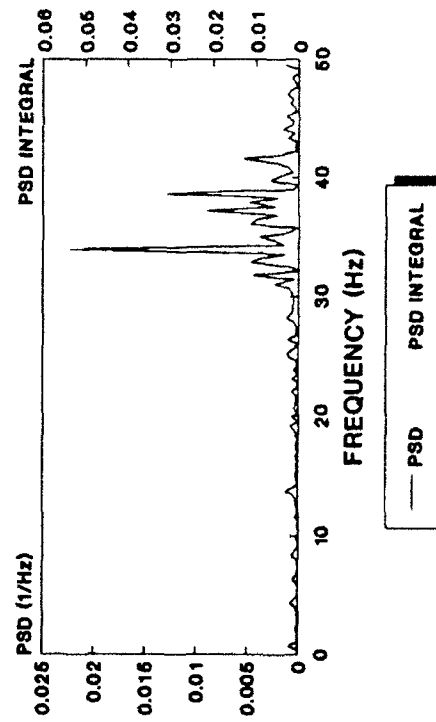
CUBE (R) - HT 8.9 - THETA 30 - AZ 180

# MOMENT COEFF - ROLL 120 FT/SEC NOMINAL



CUBE (R) - HT 8.9 - THETA 30 - AZ 180

# MOMENT COEFF - ROLL 180 FT/SEC NOMINAL



CUBE (R) - HT 8.9 - THETA 30 - AZ 180